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DEPARTMENT OF REGISTRATION AND EDUCATION

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DIVISION OF THE  
STATE GEOLOGICAL SURVEY

M. M. LEIGHTON, *Chief*

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REPORT OF INVESTIGATIONS---NO. 1

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FURTHER CONSIDERATION OF PROSPECTS  
FOR OIL  
IN THE DECATUR AREA

BY  
D. M. COLLINGWOOD



ILLINOIS DOCUMENT

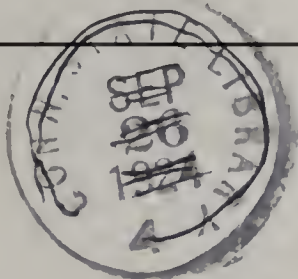
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# FURTHER CONSIDERATION OF PROSPECTS FOR OIL IN THE DECATUR AREA

By D. M. Collingwood

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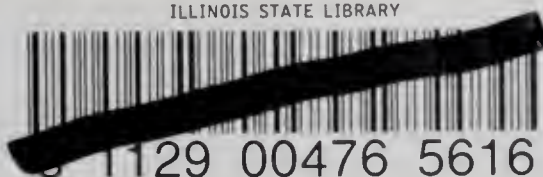
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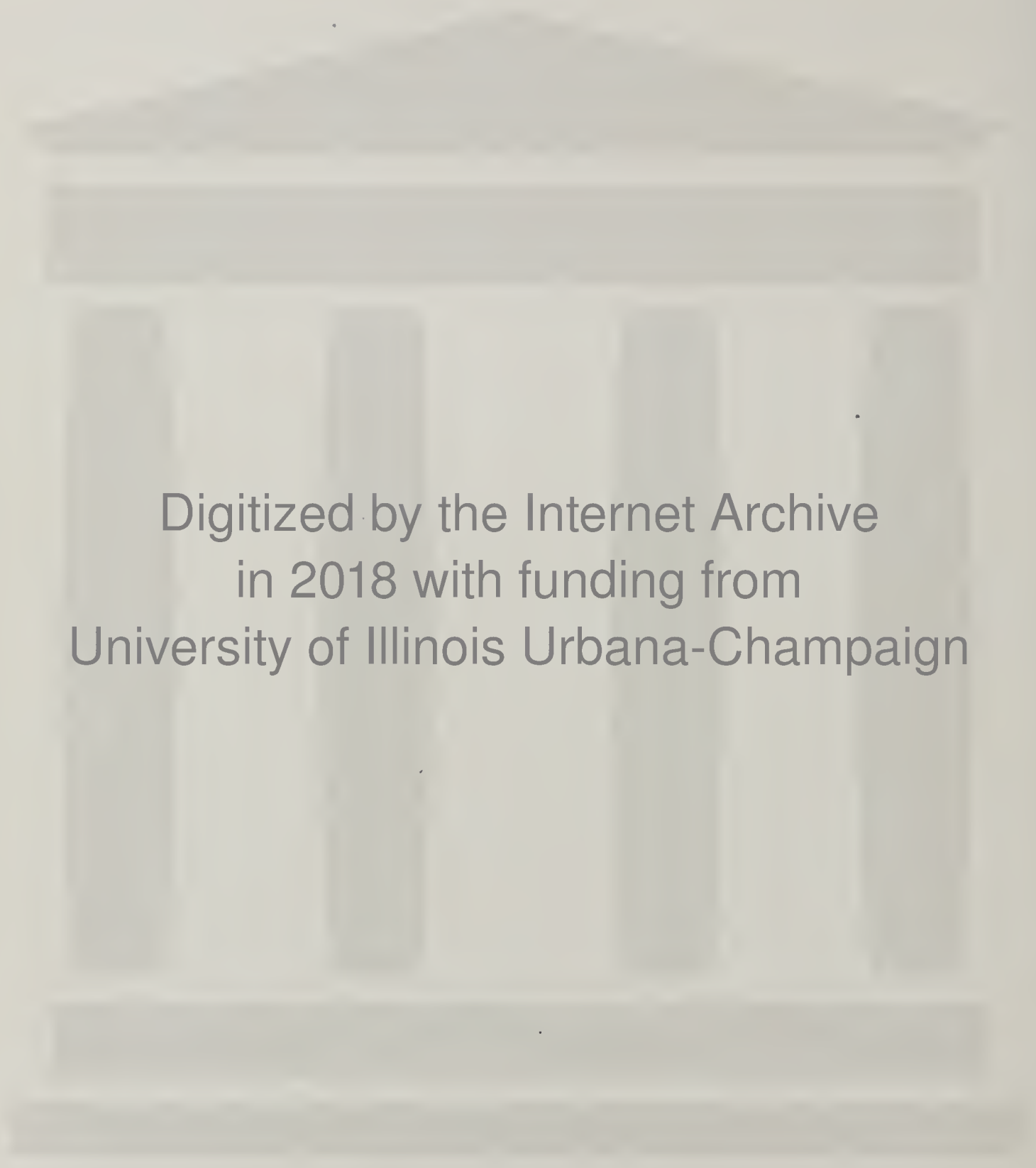
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## INTRODUCTION

### PURPOSE OF REPORT

A pamphlet entitled "Notes on Prospects in the Decatur Area" was published by the Illinois Geological Survey in March, 1922. Since that time, some additional drilling has been done in the area and accurate curb elevations of the tests for which there are records available have been obtained. These data now afford a somewhat more satisfactory basis on which to formulate correlations and interpret the local structure. Attention is called to the accompanying map (Pl. I) showing the suggested irregularities of the local structure which will indicate in advance of further drilling the locations of greater promise, so that any further exploratory drilling can be undertaken to test the existence of complete closure in the shallow horizons before undertaking the deep tests.

### DATA ON WHICH STUDY IS BASED

Copies of representative logs available for this area, including those published in the previously mentioned Press Bulletin, are grouped by counties in the appendix. On the map, Plate I, those borings for which records are included are shown by certain symbols accompanied by numbers designating corresponding logs in the appendix. Levels were run from points of known elevation on the railroads and from United States Geological Survey bench marks to obtain curb elevations of the drill holes.

## GENERAL GEOLOGY

### GEOLOGIC SECTION

For the convenience of the reader, the following generalized section of strata penetrated in the Decatur area is given. As shown in the section, the horizon that has given good shows of oil is encountered about 20 to 40 feet below the top of the Silurian ("Niagaran") limestone at a total depth of about 2000 feet.

	Thickness <i>Feet</i>	Depth <i>Feet</i>
Pleistocene system		
Loess and drift		
Pennsylvanian system		
McLeansboro	} ..... 870	870
Carbondale		
Pottsville ?		
{ "Coal Measures"		
Mississippian system		
Upper Mississippian sub-system		
Chester series	..... 225	1095
Lower Mississippian sub-system (upper part—"Big Lime")		
Spergen	} ..... 725	1820
Osage		
Kinderhook		
Sweetland Creek (chocolate shale)	..... 165	1985
Devonian system	..... ?	?
Silurian system (oil in upper part)		
Niagaran	} ..... 400	2385
Alexandrian		
Ordovician system		
Maquoketa	..... 185	2570
Trenton	..... 300+	2870+

### REGIONAL STRUCTURE

All of the formations with the exception of the Pennsylvanian and upper Mississippian rocks have nearly constant thickness in the holes that have gone to the Silurian in the immediate area. The Pennsylvanian rocks and to a lesser degree, the upper Mississippian strata, thicken basinward below the surface deposits, progressively towards the south and east, the direction of the regional dip.

In general, the dip of the shallow rocks in Illinois parallels that of the deeper ones, but in this area, due to pre-Chester deformation and the thickening and increase in number of formations to the south and east, the Pennsylvanian and Chester have somewhat less dip than the underlying rocks. Local disconformable irregularities masking the expression of true dip occur at the top and bottom of the Chester series as shown in figure 1. The same sort of situation holds true, although to a lesser degree, for the top and bottom of the Sweetland Creek shale. In the immediate vicinity of Decatur, the Chester seems to thicken slightly also towards the northeast along the regional strike of the rocks.

### LOCAL STRUCTURAL CLOSURES

Where local flexures are imposed on non-parallel strata conforming with the general basinward dip, the flexure of the folds may be sufficient to show some reversal or closure in the upper beds, while the lower ones may lack sufficient curvature to show anything more than a flattening of the regional dip. Furthermore, where the folding is sufficient to

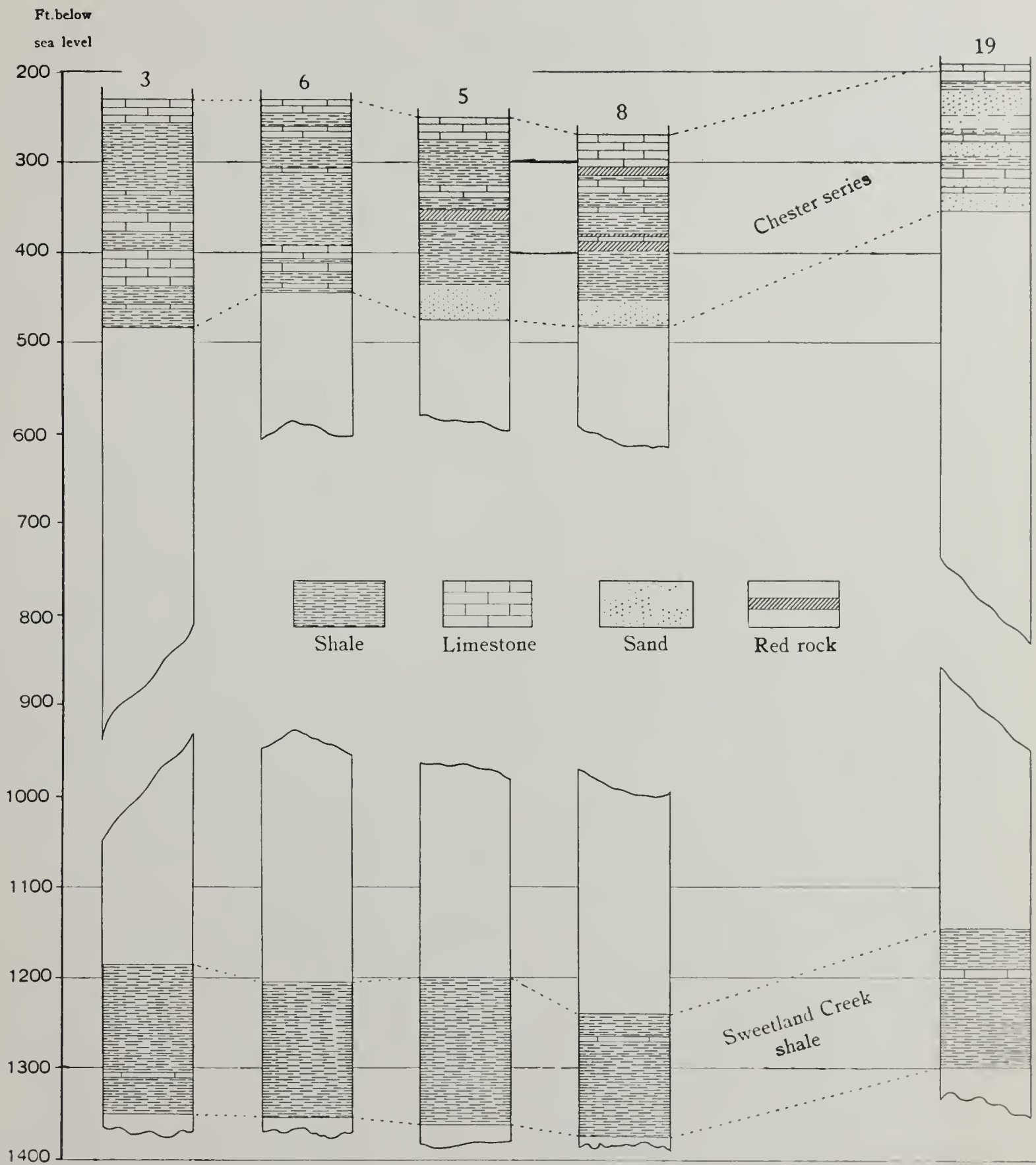


Figure 1. Cross section in the Decatur area to show local irregularities in contact surfaces between disconformable beds at the top and bottom of the Chester series and of the Sweetland Creek shale.

No. 3. Lincoln Oil and Gas Co., well No. 3, SE.  $\frac{1}{4}$ , SE.  $\frac{1}{4}$ , sec. 32, T. 17 N., R. 2 E.

No. 6. Lincoln Oil and Gas Co., well No. 2, SW.  $\frac{1}{4}$ , NE.  $\frac{1}{4}$ , sec. 5, T. 16 N., R. 2 E.

No. 5. Lincoln Oil and Gas Co., well No. 1, SE.  $\frac{1}{4}$ , NE.  $\frac{1}{4}$ , sec. 5, T. 16 N., R. 2 E.

No. 8. Atlantic Oil and Gas Co., Bledsoe farm, No. 1, SW.  $\frac{1}{4}$ , SE.  $\frac{1}{4}$ , sec. 5, T. 16 N., R. 2 E.

No. 19. Mt. Auburn Oil and Gas Co., well No. 2, NW.  $\frac{1}{4}$ , NW.  $\frac{1}{4}$ , sec. 25, T. 15 N., R. 2 W.



provide complete reversal in the dip of the lower beds, the crest of the doming will probably not be found directly below that of the upper beds, but slightly offset in the direction up the regional dip.

These points should be remembered in test drilling to considerable depth a structural dome or anticline which has been revealed by correlating shallow horizons. In the absence of sufficient records of deep drilling, structure contours drawn on a shallow key horizon are helpful in locating tests on favorable deep structures, although the latter may be modified in degree and position.

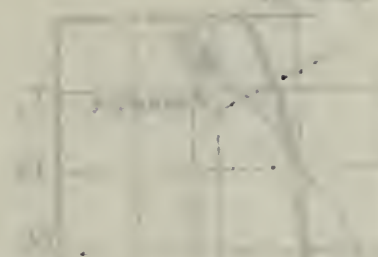
### STRATIGRAPHY

Few borings in the area have gone deeper than the Pennsylvanian system. The Pennsylvanian rocks directly underlying the glacial drift extend to a depth of about 900 or 1000 feet. In the absence of cores and thorough sampling, the most helpful guides in correlating logs of shallow test borings are the limestones, the coal beds and local red and black shales. The chief coal beds in their order of penetration, are Nos. 7, 6, and 5, which occur with vertical intervals of 25 to 150 feet and at a depth between 350 and 1050 feet, depending on location and surface elevation. Log No. 23 in sec. 1, T. 14 N., R. 2 W., listed in the appendix is a typical record of the coal tests in northern Christian County, and shows all three coals with the addition of a local coal between No. 6 and No. 5. Limestone cap rocks are locally associated with the No. 7 and No. 5 coals, but the most important and persistent limestone member associated with the coal seams is the fossiliferous limestone cap of No. 6 coal. There are two other main Pennsylvanian limestone horizons encountered. The one at 150 to 250 feet above No. 5 coal is associated with and often replaced by a thin bony coal formation, which is a good horizon marker, and another, probably the Carlinville and Shoal Creek limestone horizon is found at 250 to 400 feet above No. 5 coal. The Carlinville and Shoal Creek limestone horizon which generally comprises several beds separated by shale, is very persistent but is not such a good index of structure as either No. 5 or No. 6 coal because of its shallower position in the rock section and because generally some beds are unrecognized and therefore not accurately logged by drillers. Toward the south and east of the area mapped, another persistent limestone, probably equivalent to the Carthage or New Haven, is found about 250 feet above the Carlinville. Red shales lying between 30 and 70 feet above No. 6 coal in the Christian County area and about 50 to 100 feet above No. 6 coal in the Decatur area are also helpful locally in correlating drilling records.



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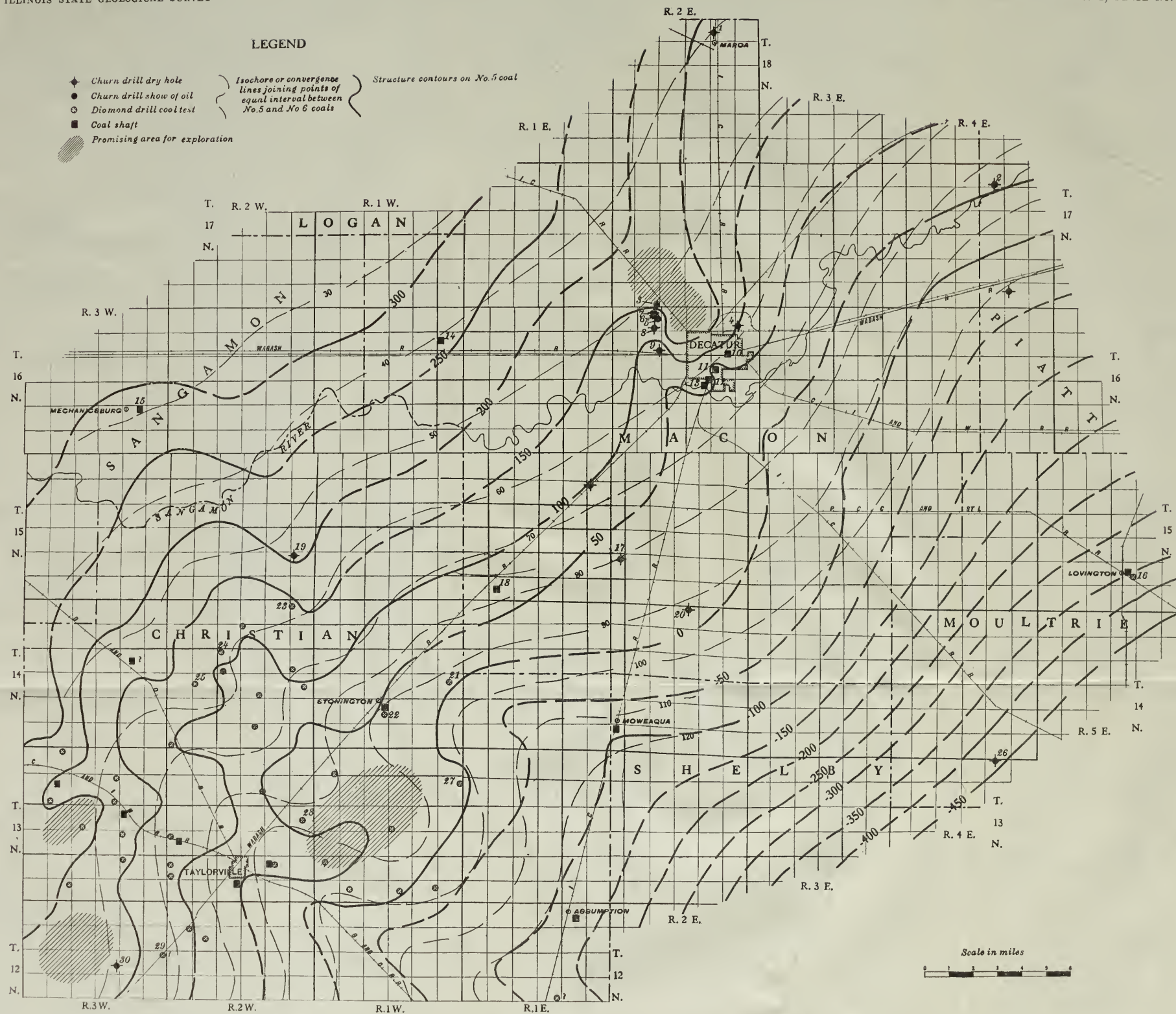
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## LEGEND

- ◆ Churn drill dry hole
- Churn drill show of oil
- Diamond drill cool test
- Coal shaft
- ▨ Promising area for exploration
- { Isochore or convergence lines joining points of equal interval between No. 5 and No. 6 coals
- { Structure contours on No. 5 coal



Structure map of Decatur and vicinity showing contours on No. 5 coal, with reference to sea level, with superimposed convergence (isochore) lines. Areas which are cross hatched show favorable structural areas for further exploration.



In the north part of Christian County, No. 6 coal is mined and can be traced easily towards Macon County by comparing a number of coal test records most of which note No. 7 and No. 6 coals, some of which are deep enough to show the local coal immediately below No. 6 and a few of which penetrate No. 5 coal. Then there is an area between the south line of Macon County and the city of Decatur in which records of the coals are scarce. In this area No. 6 coal is probably considerably thinner and may be absent.

In the Decatur area a coal which has been called No. 5 coal, the equivalent of the coal mined in the Springfield and Peoria regions, has been mined for a number of years. This coal is present east and southeast of Decatur, but is not recorded in the oil tests west and northwest of the city, with the exception of the boring in sec. 8, T. 16 N., R. 2 E. (Record No. 9, Macon County) in which two feet of coal believed to be No. 5 was reported.

In Christian County, notably in Tps. 13 and 14 N. and Rs. 1 and 2 W., a coal is found locally about 25 or 30 feet below No. 6. This has formerly been correlated as No. 5, and is probably the same coal that is mined at Moweaqua.<sup>1</sup> In the surrounding area, the interval between No. 6 and No. 5 appears to have a very definite relation to the regional structure. It is about 60 feet at Decatur and southwestward, at right angles to the direction of the dip of the rocks. The interval decreases up the dip towards Sangamon County, and increases basinward towards Moultrie and Shelby counties. Thus, the interval between No. 6 and No. 5 coals at Mechanicsburg is about 30 feet, and at Assumption it is about 130 feet. Isochore or convergence lines joining points of equal interval between No. 6 and No. 5 coal are shown on Plate I. From an examination of these isochore lines it is evident that a coal occurring only 25 to 30 feet below No. 6 in Tps. 13 and 14 N., Rs. 1 and 2 W. is probably not the true No. 5 coal, but must be an extra coal bed of local development.

### POSSIBLE PETROLIFEROUS HORIZONS

Commercial quantities of oil and gas might be found in the shallower sands of the Pennsylvanian and Upper Mississippian (Chester) strata, should there be any distinct local doming, but the drilling of the numerous coal tests and other holes shown on the map has failed to show any oil in these shallower formations.

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<sup>1</sup> Kay, Fred H., Coal resources of District VII, Ill. Mining Investigations Bull. 11, pp. 205, 215, 1915.



Below the Chester beds, the next possible oil horizons are above and below the dark chocolate Sweetland Creek shale at the base of the Mississippian. No oil has yet been discovered above the shale in this area, although the Carper sand recently found productive at this horizon in the Martinsville field of Clark County, Illinois, may be present locally. A very fine grained sandstone, which might be called a siltstone, lies about 400 to 500 feet above the top of the Sweetland Creek shale. Sand grains are also found in lesser amounts in the samples from the formation about 50 to 150 feet above the Sweetland Creek shale.

Indications of oil accumulation in this area have been obtained from the upper portion of the Silurian limestone which lies directly below the Sweetland Creek shale, and is commonly referred to as the "Niagara". Where the upper 20 feet of this formation has been penetrated in the Decatur area, it is a dense, white, hard, cherty limestone interbedded with some cream colored dolomitic strata. Considerable amounts of white to blue, translucent chert appear to be distributed irregularly through the dolomitic limestone beds as well as being interbedded with them. This upper portion of the dense white limestone has not proved oil bearing, but immediately below it, the limestone becomes more dolomitic and softer, although a large amount of chert is still present. Twenty-five feet of this formation showed oil in the No. 1 well of the Lincoln Oil and Gas Company (Record No. 5, Macon County). At a depth of approximately 60 feet in the limestone, the buff dolomitic beds give place to more uniform, gray dolomitic limestone with less chert in which oil shows have not been obtained. The Lincoln Oil and Gas Company No. 2 well (Record No. 6, Macon County) was drilled considerably deeper but no oil was found in the Silurian and only a trace reported in the upper portion of the Trenton. In the No. 3 well of the Lincoln Oil and Gas Company (Record No. 3, Macon County) oil showed at depths of 24 feet and 33 feet below the top of the Silurian limestone. The oil is contained apparently in the buff, slightly porous, dolomitic beds between 20 and 60 feet below the base of the Sweetland Creek shale. Dolomitic limestone is commonly porous due to the shrinkage in size of crystals resulting from the chemical replacement of calcium carbonate by the more dense magnesium carbonate.

The large amount of chert present as irregular masses, stringers and beds retards drilling. The chert has probably filled some of the intercrystalline interstices that result from dolomitization. Before the deposition of the overlying Sweetland Creek shale, the Silurian dolomitized limestone was subjected to erosion. During this time it is probable that solution cavities, some of them quite large, were formed by

percolating surface water. At the same time, possibly at slightly greater depth, some deposition from solution might have occurred, due to the mixing of waters or other causes, resulting in further cementation or filling of the small pore spaces caused by dolomitization.

In well No. 3 of Lincoln Oil and Gas Company a cavity containing no gas, oil, or water, and into which drilling water and cuttings disappeared was encountered at 2005 feet. Later, when the shot was being tamped, considerable water had to be run in to fill the cavity before the water rose in the hole. The existence of this cavity containing neither gas nor fluid seems to indicate a lack of continuity of the pores in this limestone. This is further borne out by the occurrence of oil and some water under slight pressure in the No. 1 well of the Lincoln Oil and Gas Company only a quarter of a mile distant. The latter also shows that fluid under pressure exists locally in some beds of this dolomitic limestone. Apparently the land surface was low and the percolation of surface waters extended only to a shallow depth, giving a narrow vertical range to the zone of solution cavities. Within the shallow zone, the porosity of the dolomitic beds has been modified and restricted by the irregular distribution of the chert and the character of the bedding planes.

#### IMPORTANCE OF SAMPLING FORMATIONS AND WATERS

Very little bottom water is found with the oil in Well No. 1 of the Lincoln Oil and Gas Company, but there is sufficient pressure to bring the fluid in the casing to the surface. The presence of water under pressure in the Silurian limestone and a general similarity to the chemical character of water commonly associated with oil, would probably serve as good criteria in prospecting for local accumulations of oil on possible favorable structures. It is recommended that in the future, operators in this area sample all waters encountered, including water produced with the oil. The State Geological Survey is willing to supply the containers for these samples for use in connection with a state-wide study of oil-field waters, from which it is hoped much benefit will result to the operators regarding various oil-field exploration and operation problems.

#### CHARACTER OF THE OIL

The oil in the No. 1 well of the Lincoln Oil and Gas Company (Record No. 5, Macon County) is of a good "live" quality, and is reported as testing 39.5° Baumé. The amount showing when the well was shot was indicative of a well that would make a few barrels initial



production, but it was not considered economical to pump it alone at a depth of 2000 feet. It was tubed and left to stand after the pump had sanded up during an attempt to make a pumping test on the beam. In this condition, the fluid has been under sufficient pressure to fill the casing and when the valve on the casing head is opened, a flow of oil is obtained for a short time. This has been used in small quantities by local farmers.

## DETAILED STRUCTURAL CONSIDERATIONS AND RECOMMENDATIONS FOR FUTURE PROSPECTING

### INTRODUCTION

The structure contours on Plate I are drawn on the top of No. 5 coal which is the best representative horizon to correlate the records of test holes and mine shafts in the Decatur area with those in northern Christian County. The elevations given are based on sea level datum. Values for the altitude of No. 5<sup>1</sup> coal<sup>2</sup> in those borings in Christian and Moultrie counties that have not gone deep enough to penetrate the horizon of that coal have been obtained from that of No. 6 coal by means of the interpolated interval from the nearest isochore line (Pl. I).

As shown by the structure contours on the map, the regional dip is to the southeast. Any slight local dip to the north and west indicates the presence of some local folding. Such folding of the strata would be favorable for the accumulation of oil in petroliferous beds, only if complete local reversal of dip is present.

### AREAS OF POSSIBLE LOCAL DOMING

There are four localities where such irregularities in the regional dip appear to exist, and are shown on Plate I by shading. One is northwest of Decatur—northwest, north and east of the recent deep drilling in sec. 32, T. 17 N., R. 2 E. (Record No. 3, Macon County) and sec. 5, T. 16 N., R. 2 E. (Record Nos. 5 and 6, Macon County). Another is situated in T. 13 N., R. 1 W. Two others of minor importance are located in T. 13 N., R. 3 W., and T. 12 N., R. 3 W.

In further testing of these anticlinal noses that are shown up so definitely in the shallow Pennsylvanian beds, it is advisable to determine

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<sup>2</sup> For previous identification of No. 5 coal, see the following references: Kay, Fred H., Coal resources of District VII: Ill. Mining Investigations Bull. 11, p. 68, 1915.

Cady, G. H., Coal resources of District IV: Ill. Mining Investigations Bull. 26, p. 140, 1921.



the existence of complete closure in the shallow horizons before the deeper horizons are tested.

#### THE DECATUR AREA

##### GENERAL DESCRIPTION

Of the four areas mentioned, the one at Decatur is of first importance, because good shows of oil have already been found in deep tests to the Silurian ("Niagara") limestone. The absence of No. 5 and No. 6 coals in the area probably indicates the existence of an elevated region in late Carbondale time and suggests shore conditions at the edge of the basin in which No. 5 coal was deposited to the east, south, and west. Some local folding causing this uplift in Pennsylvanian time is also indicated by correlating the recorded No. 5 coal south, southeast and northeast of Decatur with what appears to be its equivalent horizon in the borings northwest of Decatur. An interval between the red shales overlying the horizon of No. 6 coal and one of the coals or its equivalent horizon traceable as black shale has been used in determining the horizon of No. 5 coal. Based on these estimates, the contours show a local structurally high area from which the bedding of the strata dip northeast, southeast, and southwest. A dip to the northwest that would complete the closure in all directions has not been proved either in shallow or deep horizons but possibly may be present.

The four deep tests that have been drilled in this area, three by the Lincoln Oil and Gas Company and one by the Atlantic Oil and Gas Company, are aligned approximately in a north-south direction (Pl. I). From examination of the various formational contacts noted in the logs in the appendix and in the cross section (fig. 1), it will be seen that in well No. 2 of the Lincoln Oil and Gas Company (Record No. 6, Macon County) which is located slightly west of well No. 1 (Record No. 5, Macon County) the top and bottom of the Chester and the top of the "Niagara" are higher than in No. 1, while the top of the Sweetland Creek shale is a very little lower. The bottom of the Chester is markedly higher, but this is probably accentuated by a local high erosional area on the surface of the "Mississippian Lime" before the deposition of the Chester. It is not, therefore, altogether indicative of bedding structure, although in Illinois if such erosional highs are of relatively large extent, they may indicate some folding of the Mississippian beds prior to the deposition of the overlying formations. These considerations suggest the existence of a high local structure situated to the north and west of well No. 3 of the Lincoln Oil and Gas Company.

On the other hand, the following facts point to the existence of a high structure north and east of well No. 3. The top and bottom of the Chester formations and of the Sweetland Creek shale show a general southward dip of approximately 40 feet to the mile. This is a little greater than the average regional dip which is at a maximum in a direction somewhat east of southeast. Such a southward dip would imply a high local structure to the north or to the northeast of the test in sec. 32, T. 17 N., R. 2 E. (Record No. 3, Macon County). Additional evidence of a possible structural high area in this direction may be found in the trend of the lobe shown by the shallow contours and the fact that the top of the "Niagara" in Lincoln No. 3 is a little higher than in Lincoln No. 2 and is situated slightly northeast of it.

#### RECOMMENDATIONS FOR FUTURE DRILLING

Tests for production therefore in this area might be located a mile and a half to the north and slightly west of Lincoln No. 3 well, or about one mile to the east of Lincoln No. 3. However, deep tests should not be undertaken until closure to the northwest in the shallower horizons has been demonstrated. Further information from the test for structural closure will help to determine the best location for a production test.

#### OTHER POSSIBLE AREAS OF LOCAL DOMING

In the light of our present knowledge, the other local structures mentioned do not present as favorable possibilities as the Decatur structure. No shows of oil have been reported in association with them, but no tests on them have gone deeper than the Pennsylvanian with the exception of an oil test by the Palmer Oil Gas and Mineral Company in sec. 15, T. 12 N., R. 3 W. (Record No. 30, Christian County) which is situated on the edge of at least a structurally flattened area. The test stopped in the Mississippian "Big Lime". As shown on the map, an area immediately to the west of this test might prove productive if there is structural closure farther to the west.

A small area in T. 13 N., R. 3 W. shows a possibility of some closure in the Pennsylvanian strata. If this is also shown in horizons at greater depth, oil accumulation might be expected, but owing to the small area of the structure, closure at depth appears doubtful.

In the shaded area shown on Plate I in T. 13 N., R. 1 W., there is promise of the shallow structure being represented also at greater depth. If closure can be proved in shallow horizons, a deep test would be justified and probably should be located about the center of the shaded area.



The Mount Auburn Oil and Gas Company's test in sec. 25, T. 15 N., R. 2 W. (Boring No. 19, Christian County) apparently is situated near the axis of a plunging anticline but in a position where the plunge is steep. Along the axis to the north and particularly along the axis about 4 miles to the south where the presence of some flattening of the axis is indicated, would have been a better position for a decisive test. A slight show of oil was reported 10 and 20 feet below the top of the Silurian lime.

Lack of data prevents more detailed knowledge regarding the possibility of a local closure in the south  $1\frac{1}{2}$  of T. 15 N., R. 2 E. and the northwest corner of T. 14 N., R. 2 E., but there is a suggestion of a structural terrace or at least a somewhat flattened interruption of the regional dip. A test (Boring No. 17) in sec. 30, T. 15 N., R. 2 E., and one (Boring No. 20) in sec. 3, T. 14 N., R. 2 E., Macon County, were drilled almost to the base of the Chester series. Salt water was found in the basal Pennsylvanian and Chester sandstones. This area would be of interest for further testing for favorable structural closure if the neighboring more pronounced structures prove productive.

### CONCLUSIONS

Where structural irregularities in the shape of anticlinal noses suggest the possibility of some local complete closure, particularly as indicated by the four shaded areas on Plate I, it is recommended that tests with the diamond drill be undertaken to determine the presence and amount of total closure in a suitable shallow key horizon before incurring the expense of a deep hole to the Silurian ("Niagara") dolomitic limestone horizon. The coals of the Pennsylvanian serve as a fair index for structure determination, and have shallow depth in their favor, but although the contact between the base of the Chester series and the "Big Lime" of the Mississippian is considerably deeper and locally unconformable, it is probably a more reliable index of the structural parallelism of the deeper formations.

Tests to the surface of the Mississippian "Big Lime" would provide three key horizons for correlation purposes—some coal or limestone in the Pennsylvanian, the top of the Chester and the top of the Mississippian "Big Lime." Although two of these are unconformable, it is believed that they will indicate accurately enough the presence of any structural closure sufficient to warrant drilling to the deeper horizons for production.



APPENDIX—REPRESENTATIVE LOGS  
CHRISTIAN COUNTY

No. 19			Lime, white (one bailer of water per hour).....	5	1545
Mt. Auburn Oil and Gas Co.—No. 2			Lime, white .....	35	1580
C. Montgomery farm			Lime, white (one bailer of water per hour).....	5	1585
NW. ¼, NW. ¼, sec. 25, T. 15 N., R.			Lime, white .....	35	1620
2 W.			Lime, gray .....	10	1630
Curb elevation—607.8 feet			Lime, green .....	3	1633
			Lime, gray .....	27	1660
			Lime, pink .....	5	1665
			Lime, gray .....	35	1700
			Lime, green .....	15	1715
			Slate, green .....	5	1720
Pleistocene system			Lime, white .....	2	1722
Soil, sand and gravel.....	128	128	Rock red .....	13	1735
Pennsylvanian system			Lime, brown .....	20	1755
Shale, white .....	207	345	Sweetland Creek shale		
Coal .....	4	349	Shale, blue .....	45	1800
Shale, white .....	46	395	Lime, brown .....	10	1810
Lime, white .....	5	400	Shale, brown .....	100	1910
Horizon of No. 5 coal			Silurian system		
Slate (set 10-inch casing).....	100	500	Lime, brown .....	116	2026
Lime, white .....	15	515	From 1910 to 2000 feet, sand was noticeable in lime. At 1920 to 1930 more sand was shown and also a show of oil. No trace of gas any place in hole. Well abandoned at 2026 feet.		
Shale, brown .....	25	540			
Shale, white .....	160	620			
Sand (hole filled with water) .....	80	700			
Slate, black .....	65	765			
Slate, black (set 8¼-inch casing) .....	35	800			
Mississippian system			No. 21		
Upper Mississippian sub-system			Byrd-Willey		
Chester series			Cen. E. line, SE. ¼, NW. ¼, sec. 24, T. 14 N., R. 1 W.		
Lime, dark .....	15	815	Curb elevation—607 feet		
Lime, white .....	5	820			
Slate, white .....	10	830			
Sand (hole filled with water) .....	25	855			
Shale, green .....	3	858			
Sand .....	4	862			
Slate, white .....	4	866			
Sand .....	3	869			
Slate, green (set 6⅝-inch casing) .....	3	872			
Lime, white .....	7	881			
Sand .....	16	907			
Slate, white .....	8	915			
Pyrites of iron.....	5	920			
Lime, brown .....	10	930			
Sand .....	10	940			
Lime .....	5	945			
Sand .....	20	965			
Lower Mississippian sub-system					
Lime .....	385	1350			
Shale, white .....	13	1363			
(under-reamed; set 6⅝- inch casing)					
Shale, blue .....	147	1510			
Lime, gray .....	30	1540			

No. 21—*Concluded*

Dark shale	4	231	..	Gravel	3	21	..
Gray shale	8	239	..	Clay	3	24	..
Dark shale	11	250	..	Sand and gravel	10	34	..
Gray shale	14	264	..	Gravel	2	36	..
Dark shale	8	272	..	Clay, yellow	16	52	..
Gray shale	14	286	..	Clay, yellow	5	57	..
Dark shale	6	292	..	Sand, fine	5	62	..
Dark shale	6	298	..	Sandy clay	14	76	..
Gray shale	15	313	..	Clay and gravel	6	82	..
Gray shale	7	320	..	Gravel	3	85	..
Dark shale	6	326	..	Clay, blue	35	120	..
Gray shale	11	337	..	Clay, blue	24	144	..
Dark shale	2 8	339 8	..	Sand, fine	1	145	..
Coal	1 2	340 10	..	Sand	16	161	..
Gray shale	1 2	342	..	Sand and gravel	2	163	..
Gray shale	6	348	..	<i>Pennsylvanian system</i>			
Sandstone	2	350	..	Lime, soft, shale	10	173	..
Dark shale	6	356	..	Shale, blue	7	180	..
Gray shale	10	366	..	Limestone	7	187	..
Dark shale	32	392	..	Limestone	3	190	..
Gray shale	21	419	..	Shale, blue	21 6	211 6	..
Dark shale	13	432	..	Limestone	4 6	216	..
Dark tough shale	23	455	..	Shale, blue sandy	10	226	..
Gray shale	11	466	..	Lime	8	226 8	..
Gray shale	8	474	..	Shale, black	2 2	228 10	..
Black shale	1 2	475 2	..	Coal	4	229 2	..
Coal	1 10	477	..	Shale, soft, green	5 6	234 8	..
Blue shale	2	479	..	Lime, shale	9	243 8	..
Gray shale	3 3	482 3	..	Shale, blue	4 8	248 4	..
Coal	1 6	483 9	..	Shale, black	4	252 4	..
Limestone	5 9	489	..	Shale, blue, sandy	10	262 4	..
Sandstone	4	493	..	Sandstone	2	264 4	..
Gray shale	11	504	..	Shale, blue, sandy	21	285	..
Blue limestone	8	512	..	Shale, blue, sandy	27	312 4	..
Black shale	2 4	514 4	..	Shale, dark blue	8 8	321	..
Coal (No. 6)	2 10	517 2	..	Shale, black	4	321 4	..
Shale band	3	517 5	..	Coal	1 3	322 7	..
Coal (No. 6)	3 6	520 11	..	Shale, blue	2 9	325 4	..
Soft dark shale	1 1½	521 ½	..	Shale, blue	3	328 4	..
Coal (No. 6)	1 1½	522 2	..	Sandstone	7	335 4	..
Sulphur band	1	522 3	..	Shale, blue	7	342 4	..
Coal (No. 6)	1 10	524 1	..	Shale, blue	28	370 4	..
Fire clay	4 11	529	..	Blue slate with brown			
Dark shale	3	532	..	sulphur	43	413 4	..
Gray shale	7	539	..	Sand shale with	2		

## No. 22

*Stonington Well*

NE. ¼, SE. ¼, sec. 28, T. 14 N., R.  
1 W.

Curb elevation—613 feet

	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Soil	3	3
Clay, yellow	4	7
Clay, dark	6	13
Sand, gray	5	18

Shale or clod	7	472 11
Coal (No. 6)	7 5	480 4
Fire clay	3 6	483 10
Lime shale	9 6	493 4
Limestone	1 6	494 10
Slate, black	3	497 10



No. 22—*Concluded*

Coal .....	4 2	502 ..
Blue shale clay.....	.. 10	502 10
Fire clay.....	2 ...	504 10
Limestone .....	5 4	510 2
Lime shale.....	8 8	518 10
Sand shale.....	2 ...	520 10
Sandstone .....	4 ...	524 10
Sand shale, blue.....	15 ...	539 10
Sand shale, blue.....	8 ...	547 10
Sand shale, blue.....	10 ...	557 10
Slate .....	8 1	565 11
Coal (No. 5).....	2 7	568 6
Fire clay.....	3 4	571 10
Sand shale, blue.....	6 ...	577 10
Shale, sandy.....	4 ...	581 10
Blue shale .....	11 7	593 5

No. 23

*Taylor and Byrd—No. 6*

NW. cor. SW. 1/4, NW. 1/4, sec. 1, T.  
1 1/4 N., R. 2 W.

Curb elevation—567.3 feet

	Thickness <i>Ft. in.</i>	Depth <i>Ft. in.</i>
<i>Pleistocene system</i>		
Soil .....	3 ...	3 ..
Clay, blue .....	12 ...	15 ..
Sand .....	3 ...	18 ..
Gravel, fine .....	10 ...	28 ..
Gravel .....	12 ..	40 ..
Clay, blue, mixed gravel .....	7 ...	47 ..
<i>Pennsylvanian system</i>		
Shale, gray, sandstone partings .....	5 ...	52 ..
Shale, soft, gray, sand- stone partings .....	5 ...	57 ..
Shale, soft, gray.....	7 6	64 6
Coal .....	1 ...	65 6
Limestone, broken ..	14 ...	81 ..
Slate, dark .....	4 ...	85 ..
Shale, soft, sticky, gray .....	2 ...	87 ..
Limestone .....	2 ...	89 ..
Shale, dark .....	3 ...	92 ..
Lime shale .....	10 ...	102 ..
Shale, soft, sticky, gray .....	8 ...	110 ..
Shale, gray .....	16 ...	126 ..
Shale, sandy .....	10 ...	136 ..
Shale, gray .....	49 11	185 11
Coal .....	1 4	187 3
Shale, sandy, gray....	23 9	211 ..
Shale, sandy .....	19 ...	230 ..
Shale, gray .....	39 ...	269 ..
Shale, blue, brown sandstone .....	20 ...	289 ..

Limestone .....	4 ...	293 ..
Shale, dark .....	7 ...	300 ..
Slate, dark .....	1 ...	301 ..
Shale, very soft, gray.	3 ...	304 ..
Shale, gray, red streaks .....	2 ...	306 ..
Limestone, hard .....	2 ...	308 ..
Shale, yellow .....	3 ...	311 ..
Shale, dark .....	6 ...	317 ..
Limestone, hard .....	9 ...	326 ..
Shale, dark .....	7 2	333 2
Coal .....	1 10	336 ..
Shale, gray .....	2 ...	338 ..
Lime shale .....	15 ...	353 ..
Lime shale, gray.....	7 6	360 6
Limestone, hard .....	1 ...	361 6
Slate, black .....	1 ...	362 6
Limestone .....	1 ...	363 6
Slate, black .....	.. 4	363 10
Limestone .....	.. 2	364 ..
Coal (No. 6).....	5 2	369 2
Fire clay .....	.. 10	370 ..
Shale, gray .....	18 ...	388 ..
Lime shale .....	4 ...	392 ..
Shale, gray, brown bands .....	21 ...	413 ..
Slate, black .....	7 3	420 3
Coal (No. 5).....	2 6	422 9
Fire clay .....	.. 3	423 ..
Lime shale .....	9 6	432 6
Coal .....	.. 6	433 ..
Shale, dark .....	1 ...	434 ..
Coal .....	.. 4	434 4
Shale, dark .....	6 8	441 ..
Coal .....	.. 4	441 4
Shale, dark .....	2 8	444 ..
Shale, gray .....	15 ...	459 ..
Sandstone .....	2 ...	461 ..
Shale, gray .....	2 ...	463 ..
Shale, blue .....	26 ...	489 ..
Slate, dark .....	5 ...	494 ..
Coal .....	1 7	495 7
Limestone .....	1 5	497 ..
Shale, dark .....	5 8	502 8
Coal .....	2 ...	504 8
Shale, dark .....	9 4	514 ..
Lime shale .....	8 ...	522 ..
Shale, gray .....	5 ...	527 ..
Slate, black .....	5 10	532 10
Coal .....	2 ...	534 10
Shale, dark .....	4 2	539 ..
Shale, gray .....	4 ...	543 ..
Sandstone .....	1 ...	544 ..
Shale, dark .....	4 8	548 8
Coal .....	2 ...	550 8
Lime shale .....	3 4	554 ..
Shale, dark .....	13 ...	567 ..
Sandstone .....	1 ...	568 ..
Shale, dark .....	1 ...	569 ..
Lime shale .....	4 8	575 8
Coal .....	1 10	575 6
Lime shale .....	.. 6	576 ..



No. 23— <i>Concluded</i>				Shale, gray	11	...	124	...
Shale, gray	1	...	577	Shale, soft, gray	6	...	130	...
Sandstone	4	...	581	Limestone, very hard	6	...	136	...
Shale, dark	11	...	592	Slate, dark	4	...	140	...
Shale, sandy	20	...	612	Shale, very soft, gray	4	...	144	...
Shale, dark	14	...	626	Shale, soft, gray	3	...	147	...
Shale, sandstone part-				Limestone	5	...	152	...
ing	20	...	645	Shale, gray	16	...	168	...
Shale, dark	7	...	653	Lime shale with hard				
Sandstone	3	...	656	bands	9	...	177	...
Shale, dark	12	...	668	Lime shale	4	...	181	...
Shale, sandy	18	...	686	Shale, gray, brown				
Sandstone	21	...	707	bands	23	...	204	...
Shale, dark, brown				Shale, tough, dark	29	...	233	...
bands	12	...	719	Shale, gray	6	...	239	...
Shale, dark	35	...	754	Coal	1 5		240 5	
Sandstone, shale part-				Shale, very soft, gray	3 7		244	...
ing	17	...	771	Shale, sandy	16	...	260	...
Lime shale, soft	2	...	773	Shale, sandy, gray	40	...	300	...
Conglomerate	4	...	777	Shale, tough, gray	10	...	310	...
<i>Mississippian system</i>				Shale, sandy	9	...	319	...
<i>Upper Mississippian sub-system</i>				Shale, tough, dark	24	...	343	...
<i>Chester series</i>				Shale, gray	16	...	359	...
Lime shale, soft	9	...	786	Shale, very soft,				
Lime shale	14	...	800	gray, and red	7	...	366	...
Limestone, hard	1	...	801	Shale, blue	6 9		372 9	
Sandstone, hard	5	...	806	Limestone	4 2		376 11	
Sandstone, hard, shale				Shale, gray	6 8		383 7	
parting	29	...	835	Coal (No. 7)	4 11		388 6	
Lime shale	2	...	837	Fire clay	6		389	...
Limestone	9	...	846	Shale, very soft,				
Sandstone	8	...	854	gray	4	...	393	...
Sandstone, very coarse-				Limestone, hard	1	...	394	...
grained	18	...	873	Shale, dark	4	...	398	...
Limestone	3	...	876	Shale, gray	11	...	409	...
				Shale, dark	5	...	414	...
				Slate, black	2 8		416 8	
				Coal (No. 6)	5 7½		422 3½	
				Shale, gray	1 8½		424	...
				Sandstone	4	...	428	...
				Limestone	7	...	435	...
				Shale, blue	32	...	467	...
				Slate, black	7 7		475 7	
				Coal (No. 5)	3 2		478 9	
				Shale, gray	1 3		480	...

No. 24

*Byrd-Willey—No. 15*

*Cen. N. line NW. ¼, NW. ¼, sec. 16, T. 14 N., R. 2 W.*

Curb elevation—585.1 feet

	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Soil	4	4
Clay, yellow	8	12
Clay, blue	6	18
Clay, blue, fine gravel	7	25
Sand	5	30
Gravel	5	35
Clay, yellow, fine		
gravel	63	98
Gravel	2	100
Clay, blue	5	105
<i>Pennsylvanian system</i>		
Shale, dark	7	112
Limestone	1	113

No. 25		
<i>Byrd-Willey—No. 16</i>		
<i>SW. cor., SW. ¼, NW. ¼, sec. 20. T. 14 N., R. 2 W.</i>		
Curb elevation—585.8 feet		
	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Soil	2	2
Clay	16	18
Cement and gravel	2	20
Clay, blue gravelly	59	79

No. 25—*Concluded*

Sand .....	4 6	83 6
<i>Pennsylvanian system (Shoal Creek and Carlinville limestone from 114-175 feet)</i>		
Shale, blue .....	6	84 ..
Shale, soft blue.....	30	114 ..
Shale, soft gray, lime. 6 ...		120 ..
Limestone .....	3	123 ..
Shale, soft lime.....	4	127 ..
Limestone .....	2	129 ..
Lime shale .....	3	132 ..
Limestone .....	7	139 ..
Shale, dark .....	9	148 ..
Lime shale .....	10 4	158 4
Limestone .....	5 8	164 ..
Clay shale, soft.....	5	169 ..
Lime shale pebbles...	6	175 ..
Sandstone .....	10	185 ..
Shale, sandy .....	43	228 ..
Shale, tough blue, with brown bands .....	15	243 ..
Shale, dark .....	3 7	246 7
Coal, bony .....	3	246 10
Coal .....	1 2	248 ..
Clay shale .....	3	251 ..
Limestone .....	1 6	252 6
Shale, sandy .....	40 6	293 ..
Shale, tough blue....	6	299 ..
Shale, tough blue, brown bands .....	41	340 ..
Lime shale .....	7	347 ..
Shale, soft gray and red .....	8	355 ..
Shale, sandy .....	12	367 ..
Limestone .....	3 6	370 6
Shale, black .....	2	372 ..
Shale, dark .....	5 9	378 3
Coal .....	1 9	380 ..
Coal, bony .....	5	380 5
Coal .....	1	381 5
Shale, blue .....	4 2	385 7
Limestone .....	4 11	390 6
Shale, gray .....	6	391 ..
Limestone .....	1	392 ..
Lime shale .....	3 4	395 4
Limestone .....	5 7	400 11
Shale, black .....	1	401 ..
Coal (No. 6).....	3 5	404 5
Shale .....	1	404 6
Coal .....	9	405 3
Fire clay .....	9	406 ..
Clay shale .....	1	407 ..
Limestone .....	4	411 ..
Lime shale, lime bands .....	12	423 ..
Shale, blue, brown bands .....	2	425 ..
Shale, tough, blue...	5	425 5
Limestone .....	7	426 ..
Shale, black .....	2 9	428 9

Coal, bony .....	3	429 ..
Coal .....	4 9	433 9
Fire clay .....	3	434 ..
Shale, blue .....	1	435 ..

No. 27

<i>Byrd-Willey—No. 10</i>		
NW. ¼, SE. ¼, NE. ¼, sec. 12, T. 13 N., R. 1 W.		
Curb elevation—573 feet		
	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Clay .....	11	11 ..
Sand .....	22	33 ..
Clay and loose rock..	32	65 ..
<i>Pennsylvanian system</i>		
Shale, black .....	1 6	66 6
Coal .....	6	67 ..
Shale, light .....	15	88 ..
Shale, sandy .....	23	105 ..
Sandstone .....	4	109 ..
Sand shale .....	7	116 ..
Sandstone .....	31	147 ..
Shale, dark blue....	6	153 ..
Shale, soft .....	8	161 ..
Shale, blue with a few limestone bands ...	10	171 ..
Limestone .....	11	182 ..
Shale, black .....	3	185 ..
Shale, blue .....	8	193 ..
Shale, dark .....	7	200 ..
Shale, soft, light....	4	204 ..
Shale, light with limestone nodules .....	6	210 ..
Shale, light sandy....	6	216 ..
Shale, tough blue....	5	221 ..
Shale, blue .....	4 6	225 6
Limestone .....	1	226 6
Shale, black .....	1 3	227 9
Coal, bony .....	6	228 3
Shale, soft .....	8	236 3
Sandstone, soft .....	2 6	238 9
Shale and sandstone mixed .....	7	245 9
Shale, blue .....	58 3	304 ..
Shale, black .....	1 6	305 6
Coal, bony .....	6	306 ..
Shale, sandy .....	4	310 ..
Shale, soft .....	1	311 ..
Shale, sandy .....	58	369 ..
Shale, tough blue....	12	381 ..
Shale, blue .....	14 10	395 10
Coal, bony .....	2	396 ..
Shale, soft .....	3 6	399 6
Limestone .....	6	400 ..
Shale, soft light with limestone nodules .	2	402 ..
Shale, hard .....	6	408 ..



No. 27—*Concluded*

Shale, soft light.....	3 6	411 6
Shale, black .....	2 ...	413 6
Shale, variegated ....	8 ...	421 6
Limestone and shale.	2 6	424 ..
Shale, light .....	4 ...	428 ..
Shale, variegated ....	8 2	436 2
Shale, dark .....	.. 10	437 ..
Shale, soft light.....	1 ...	438 ..
Shale, dark .....	.. 2	438 2
Coal .....	3 5	441 7
Shale, soft light.....	4 11	446 6
Shale, dark .....	.. 6	447 ..
Coal .....	.. 6	447 6
Shale, light .....	3 6	451 ..
Lime shale .....	14 ...	465 ..
Limestone .....	2 6	467 6
Limestone, dark fos-		
siliferous .....	2 11	470 5
Shale, dark .....	.. 2	470 7
Coal (No. 6).....	7 9	478 4
Shale, soft light.....	9 2	487 6
Shale, black .....	2 ...	489 6
Coal .....	4 6	494 ..
Shale, light .....	1 ...	495 ..

No. 28

*Byrd-Willey—No. 13*

NW. ¼, NW. ¼, SE. ¼, sec. 13, T.  
13 N., R. 2 W.

Curb elevation—601 feet

	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Clay .....	14 ...	14 ...
Sand .....	8 ...	22 ...
Clay and rocks.....	11 ...	33 ...
Sand, coarse .....	7 ...	40 ...
Sand, fine .....	4 ...	44 ...
Clay and sand.....	37 ...	81 ...
Sand .....	23 ...	104 ...
Clay .....	17 ...	121 ...
Sand .....	8 ...	129 ...
Clay .....	7 ...	136 ...
Sand .....	11 ...	147 ...
Gravel .....	2 ...	149 ...
Clay, sandy .....	2 ...	151 ...
Loose boulders .....	1 6	152 6
<i>Pennsylvanian system</i>		
Sandstone .....	9 6	162 ...
Shale, blue .....	3 ...	165 ...
Shale, soft light.....	19 ...	184 ...
Limestone (Carlin-		
ville) .....	9 6	193 6
Shale, light .....	1 ...	194 6
Shale, black .....	2 6	197 ...
Shale, blue .....	15 ...	212 ...

Shale, soft with hard		
lumps .....	7 ...	219 ...
Limestone and shale		
mixed .....	6 ...	225 ...
Shale, light .....	3 6	228 6
Limestone .....	4 ...	232 6
Shale, black .....	1 6	234 ...
Shale, soft, light.....	6 ...	240 ...
Lime shale .....	3 6	243 6
Shale, light .....	9 2	252 8
Coal .....	.. 10	253 6
Shale, light .....	1 6	255 ...
Shale, sandy .....	9 ...	264 ...
Sandstone .....	9 ...	273 ...
Shale, sandy .....	9 ...	282 ...
Shale, blue .....	39 2	321 2
Coal .....	1 3	322 5
Shale, soft .....	1 7	324 ...
Shale, blue .....	4 ...	328 ...
Shale, sandy .....	4 ...	332 ...
Sandstone, soft with		
a few shale streaks.	40 ...	372 ...
Shale, blue .....	18 ...	390 ...
Shale, tough, blue...	29 ...	419 ...
Coal .....	.. 3	419 3
Shale, soft .....	4 9	424 ...
Shale, tough, blue...	5 ...	429 ...
Shale, soft .....	4 ...	433 ...
Shale, dark .....	2 ...	435 ...
Limestone, blue ...	.. 6	435 6
Shale, soft, varie-		
gated .....	10 6	446 ...
Shale, dark blue....	2 7	448 7
Coal (No. 7).....	.. 7	449 2
Shale, dark .....	.. 10	450 ...
Lime shale .....	3 ...	453 ...
Limestone .....	4 ...	457 ...
Limestone and shale	2 ...	459 ...
Sandstone .....	6 6	465 6
Limestone .....	1 6	467 ...
Shale, black .....	6 2	473 2
Coal (No. 6).....	5 4	478 6
Sulphur band .....	.. ½	478 6½
Coal (No. 6).....	.. 6	479 ½
Blue band .....	.. 1¼	479 1¾
Coal (No. 6).....	1 7	480 8¾
Sulphur band .....	.. ¼	480 9
Coal (No. 6).....	.. 4	481 1
Shale, light .....	7 11	489 ...
Shale, soft .....	4 ...	493 ...
Limestone mixed		
with shale .....	7 ...	500 ...
Shale, soft .....	4 ...	504 ...
Shale, light .....	5 ...	509 ...
Shale with sand		
streaks .....	5 ...	514 ...
Shale, gray .....	6 ...	520 ...
Shale, blue .....	34 ...	554 ...
Blue rock, hard.....	1 ...	555 ...
Shale, black .....	6 6	561 6
Limestone, blue ...	.. 11	562 5
Shale, black .....	.. 2	562 7

No. 28—*Concluded*

Coal (No. 5).....	2 4	564 11
Shale, soft .....	4 1	569 ...
Shale with sand streaks .....	6 ...	575 ...
Shale, gray .....	17 ...	592 ...
Shale, black .....	4 ...	596 ...
Coal .....	1 ...	597 ...
Shale, blue .....	.. 6	597 6
Sandstone .....	5 ...	602 6
Shale, blue .....	26 6	629 ...
Shale, soft .....	7 ...	636 ...
Shale, dark .....	1 ...	637 ...
Coal .....	1 3	638 3
Shale parting .....	.. 3	638 6
Coal .....	1 2	639 8
Shale, soft .....	1 10	641 6
Sandstone .....	7 ...	648 6
Shale, sandy .....	8 6	657 ...
Shale, blue .....	8 ...	665 ...
Shale, black .....	3 8	668 8
Coal .....	1 2	669 10
Shale, light sandy...	1 2	671 ...
Shale, light .....	6 ...	677 ...
Shale, sandy .....	4 ...	681 ...
Sandstone .....	4 6	685 6
Shale, blue .....	1 ...	686 6
Coal, bony .....	.. 4	686 10
Shale, soft .....	3 2	690 ...
Shale, light .....	2 ...	692 ...
Shale, dark .....	2 5	694 5
Coal .....	.. 5	694 10
Shale, dark .....	1 2	696 ...
Shale, soft .....	5 ...	701 ...
Limestone .....	2 9	703 9
Coal .....	.. 7	704 4
Shale, blue .....	15 2	719 6
Shale, black .....	2 ...	721 6
Shale, gray ....	.. 4 6	726 ...
Shale, blue .....	2 ...	728 ...
Shale, dark blue....	9 3	737 3
Coal (No. 2).....	2 4	739 7
Sandstone, soft .....	17 5	757 ...
Shale, light .....	3 ...	760 ...
Shale, dark .....	2 ...	762 ...
Shale, blue with sandstone streaks.	36 ...	798 ...
Sandstone .....	34 ...	832 ...
Sandstone and shale mixed .....	15 ...	847 ...
Shale, blue with sand streaks .....	19 ...	866 ...
Sandstone and shale mixed .....	23 ...	889 ...
Sandstone .....	4 ...	893 ...
Shale, dark blue....	27 ...	919 ...
<i>Mississippian system</i>		
<i>Upper Mississippian sub-system</i>		
<i>Chester series</i>		
Limestone .....	31 ...	950 ...

## No. 29

Well near Clarksdale

NE.  $\frac{1}{4}$ , sec. 13, T. 12 N., R. 3 W.

Curb elevation—620+ feet

	Thickness Ft. in.	Depth Ft. in.
<i>Pleistocene system</i>		
Clay, yellow .....	19 ...	19 ..
Clay .....	29 ...	66 ..
Clay, yellow .....	12 ...	78 ..
Clay, blue .....	11 ...	89 ..
Gravel and clay.....	2 ...	91 ..
Gravel and clay.....	1 ...	92 ..
<i>Pennsylvanian system</i>		
Clay shale .....	2 ...	94 ..
Shale, blue .....	14 ...	108 ..
Shale, blue .....	14 ...	122 ..
Limestone .....	2 ...	124 ..
Shale, blue .....	5 ...	129 ..
Limestone .....	11 ...	140 ..
Shale, gray .....	1 ...	141 ..
Shale, blue .....	1 ...	142 ..
Shale, gray .....	4 ...	146 ..
Shale, blue .....	12 ...	158 ..
Shale, blue .....	2 ...	160 ..
Shale with limestone bands .....	4 ...	164 ..
Shale, sandy .....	13 ...	177 ..
Shale, black .....	1 ...	178 ..
Shale with limestone bands .....	12 ...	190 ..
Sandy shale .....	27 ...	217 ..
Sandstone .....	28 ...	245 ..
Sandstone .....	23 ...	268 ..
Sandstone .....	38 ...	306 ..
Shale, sandy .....	24 ...	330 ..
Shale, sandy .....	17 ...	347 ..
Shale, sandy .....	19 ...	366 ..
Shale, blue .....	14 ...	380 ..
Shale, blue .....	6 ...	386 ..
Shale, dark blue....	2 ...	388 ..
Shale, sandy .....	11 ...	399 ..
Shale, sandy .....	18 ...	417 ..
Shale, sandy .....	16 ...	433 ..
Shale, blue .....	3 ...	436 ..
Shale, blue .....	1 8	437 8
Conglomerate .....	.. 9	438 5
Shale, dark blue....	7 ...	445 5
Shale, blue .....	2 ...	447 5
Shale, dark blue....	.. 7	448 ..
Shale, dark blue....	2 ...	450 ..
Limestone, shale partings .....	.. 1	451 ?
Shale, sandy .....	13 ...	464 ..
Shale, light blue....	2 ...	466 ..
Shale, light blue....	11 ...	477 ..
Shale, light blue....	5 7	481 7
Coal (No. 5).....	2 4	483 11



No. 29—Continued

Shale, light blue..... 6 1	490 ..	Band coal .....	6	697 ..
Shale with streaks of		Coal .....	1 9	698 9
limestone .....	6	Shale, blue .....	9	699 6
Shale, black .....	2 ...	Sandstone .....	4 ...	703 6
Shale, blue .....	15 ...	Shale with sandstone		
Shale, blue .....	1 ...	partings .....	5 6	709 ..
Shale, sandy .....	2 ...	Sandstone .....	1 6	710 6
Shale with limestone		Shale, blue, sandstone		
bands .....	4 ...	partings .....	7 8	718 2
Shale, blue .....	16 ...	Coal and shale mixed ..	7	718 9
Shale, sandy .....	2 ...	Coal .....	3	719 ..
Shale, sandy .....	3 ...	Coal .....	2 9	721 9
Shale, black .....	7 ...	Shale, light blue.....	5 3	727 ..
Shale, black .....	7 ...	Shale, sandy, sandstone		
Shale, blue .....	2 ...	bands .....	18 ...	745 ..
Shale, sandy .....	1 ...	Shale, sandy, sandstone		
Shale .....	8 ...	bands .....	13 ...	758 ..
Shale, dark blue,		Shale with sandstone		
sandy .....	13 ...	bands .....	6 6	764 6
Sandstone .....	3 6	Sandstone, soft .....	2 1	766 7
Shale, dark blue.....	6	Coal .....	5	767 ..
Shale, sandy .....	17 ...	Coal .....	9	767 9
Shale, blue .....	9 ...	Sandstone .....	1 ...	768 9
Shale, dark blue.....	5 ...	Sandstone, shale, sand-		
Coal .....	1 6	stone bands .....	7 3	776 ..
Coal .....	8	Sandstone, shale part-		
Limestone .....	8	ings .....	6 ...	782 ..
Shale, blue .....	6	Sandstone, shale part-		
Sandstone .....	1 6	ings .....	4 ...	786 ..
Shale, blue, sandstone		Shale, sandstone part-		
bands .....	3 2	ings .....	7 ...	793 ..
Shale, blue, sandstone		Shale, dark blue ....	9 ...	802 ..
bands .....	2 7	Shale, blue .....	13 6	815 6
Coal .....	5	Sandstone .....	6	816 ..
Coal .....	1 2	Shale, blue .....	4 ...	820 ..
Shale, soft .....	2 4	Shale with sandstone		
Sandstone .....	10 ...	partings .....	3 ...	823 ..
Shale, sandy .....	3 6	Shale, blue .....	4 ...	827 ..
Shale, sandy .....	6 ...	Sandstone .....	1 ...	828 ..
Shale, blue with lime		Shale, blue .....	1 ...	829 ..
bands .....	3 ...	Mississippian system		
Shale, dark blue.....	1 10	Upper Mississippian sub-system		
Coal .....	6	Chester series		
Coal .....	10	Shale, limestone bands	3 4	832 4
Fire clay .....	1 4	Limestone .....	8	833 ..
Sandstone .....	6 6	Limestone .....	1 ...	834 ..
Sandstone, shale part-		Shale, limestone bands	6 ...	840 ..
ings .....	2 ...	Shale, limestone bands	9 ...	849 ..
Sandstone .....	5 ...	Shale, soft .....	2 ...	851 ..
Shale, sandy .....	4 ...	Limestone, shale part-		
Shale, blue with bands	7 ...	ings .....	1 ...	852 ..
Shale, blue .....	8 ...	Limestone .....	2 ...	854 ..
Slate, dark blue, coal		Shale, soft lime.....	4 ...	858 ..
partings .....	1 ...	Shale .....	2	858 2
Same .....	6	Limestone .....	2 ...	860 ..
Shale, blue .....	2 6	Limestone, shale part-		
Shale, soft .....	1 ...	ings .....	1 4	861 6
Sandstone .....	8	Lime shale .....	2 6	864 ..
Shale, blue, soft.....	1 10	Limestone, shale part-		
		ings .....	1 ...	865 ..
		Shale with bands.....	3 ...	868 ..

No. 29—*Concluded*

Limestone	.....	2	...	870	..
Limestone, shale streaks	.....	4	...	874	..
Limestone	.....	1	6	875	6
Shale, limestone bands	.....	6		876	..
Limestone	.....	10		876	10
Shale, limestone bands	.....	1	2	878	..
Limestone	.....	25	...	903	..
Limestone, shale partings	.....	8	...	911	..
Lime shale	.....	5	...	916	..
Lime shale, clay partings	.....	4	...	920	..
Sandstone	.....	21	...	941	..
Shale	.....	4	6	945	6
Shale, blue	.....	14	...	965	..

No. 30

*Palmer Oil Gas and Mining Co.—No. 1*

*NE. ¼, SE. ¼, sec. 15, T. 12 N., R. 3 W.*

Curb elevation—625 feet

	Thickness	Depth
	<i>Feet</i>	<i>Feet</i>
<i>Pleistocene system</i>		
Drift, dirt	..... 28	28
Hardpan, mixed with gravel	..... 52	80
<i>Pennsylvanian system</i>		
Shale, white	..... 10	90
Bastard lime	..... 7	97

Slate, white	.....	53	150
Coal, 12 to 18 in.	.....	2	152
Slate, white	.....	68 ?	250 ?
Shale, black	.....	10	260
Slate, white	.....	20	280
Shale, pink	.....	10	290
Slate, white	.....	110	400
Slate, black	.....	15	415
Slate, white (Horizon of No. 5 coal, 460±)	.....	135	550
Shale, black	.....	20	570
Shale, white	.....	80	650
Shale, black	.....	20	670
Slate, white	.....	190	860
Sand, white, 1st salt water	.....	30	890
<i>Mississippian system</i>			
<i>Upper Mississippian sub-system</i>			
<i>Chester series</i>			
Slate, pink	.....	35	925
Sand, 2d salt water	.....	10	935
Slate, white	.....	40	975
Shale, pink	.....	25	1000
Sand, 3rd salt water	.....	10	1010
Slate, light brown	.....	40	1050
Sand, light, 4th salt water	.....	15	1065
Slate, white	.....	5	1070
Limestone	.....	15	1085
Sand and salt water	.....	5	1090
Last mud above Big Lime	.....	10 ?	1100 ?
Slate cap Mississippian lime	.....	5 ?	1115 ?
<i>Lower Mississippian sub-system</i>			
In Mississippian lime	.....	15 ?	1230 ?

MACON COUNTY

No. 1

*T. C. Grady farm*

*NW. ¼, SW. ¼, sec. 2, T. 18 N., R. 2 E.*

Curb elevation—714 feet

	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Clay	..... 62	62
Gravel, hardpan	..... 6	68
Clay	..... 16	84
Hardpan	..... 129	213
Hardpan, sandy	..... 6	219
Clay, hardpan	..... 54	273
<i>Pennsylvanian system</i>		
Limestone	..... 15	288
Shale, light	..... 1	289
Shale, black	..... 2	291
Shale, gray	..... 5	296
Limestone	..... 4	300
Shale, light	..... 12	312

Sand shale	.....	30	342	..
Shale, gray	.....	28	370	..
Limestone	.....	10	380	..
Shale, gray	.....	19	399	..
Shale, sandy	.....	90	489	..
Slate, dark	.....	10	499	..
Coal	.....	6	499	6
Fire clay	.....	1	501	..
Sandstone, gray	.....	3	504	..
Shale, light	.....	8	512	..
Limestone	.....	9	521	..
Shale, blue	.....	4	525	..
Limestone	.....	7	532	..
Sand, shale	.....	34	566	..
Slate, black	.....	3	569	6
Coal (No. 5)	.....	1	571	..
Slate, dark	.....	4	575	..
Limestone	.....	17	592	..
Sand, shale	.....	20	612	..
Slate, black	.....	4	616	..
Shale, light	.....	6	622	..
Limestone	.....	4	626	..



No. 3

*Lincoln Oil and Gas Co.—No. 3*

*Parish farm, No. 1*

*SW. ¼, SE. ¼, SE. ¼, sec. 82, T. 17 N., R. 2 E.*

Curb elevation—644 feet

*Driller's log*

	Thickness Feet	Depth Feet
<i>Pennsylvanian system</i>		
Limestone, argillaceous, light gray.....	10	200
Same .....	5	205
Missing .....	10	215
Same .....	5	220
Shale, sandy gray, and coal.....	30	250
Shale, sandy, brown.....	10	260
Shale, laminated, sandy, light and medium gray banding—some carbonaceous partings .....	5	265
Shale, gray, slightly sandy.....	5	270
Shale, gray to brown, slightly sandy.....	5	275
Same .....	5	280
Shale, black, carbonaceous, slightly sandy.....	20	300
Missing .....	40	340
Limestone, hard crystalline, white to light gray.....	5	345
Limestone, hard crystalline, white and gray.....	5	350
Shale, brown, with some thin beds of black carbonaceous shale...	5	355
Shale, pink .....	5	360
Shale, variegated light colored with some limestone, possibly con- cretions .....	10	370
Shale, gray, with thin interbedded limestone.....	10	380
Shale, brown, shading from reddish to gray.....	10	390
Shale, gray, medium dark.....	10	400
Missing .....	25	425
Limestone, brown to gray with carbonaceous and argillaceous partings .....	5	430
Shale, gray, with thin bedded limestone.....	10	440
Shale, gray to brown, with occasional lime pellets, probably con- cretionary .....	20	460
Shale, red cavy.....	15	475
Slate, blue .....	50	525
Slate, white .....	75	600
Slate, blue .....	25	625
Slate, white .....	5	630
Sand, salt water.....	30	660
Coal .....	8	668
Slate, white .....	12	680
Red rock .....	40	720
Slate, blue .....	30	750
Slate, white .....	50	800
Shale, red .....	25	825
Coal .....	5	830
Slate, white .....	20	850
Shale, black .....	25	875
<i>Mississippian system</i>		
<i>Upper Mississippian sub-system</i>		
<i>Chester series</i>		
White lime .....	25	900
Slate, blue, 8¼-inch set 925 feet, cave.....	25	925
Shale, black, underreamed 8¼-inch 1005 feet.....	25	950

No. 3—*Concluded*

Slate, white .....	25	975
Lime, blue .....	5	980
Slate, blue .....	20	1000
Lime, sandy, with water.....	20	1020
Slate, blue .....	10	1030
Shale, red, cave, 6 $\frac{5}{8}$ -inch set 1050 feet.....	10	1040
Lime, sandy, underream, 6 $\frac{5}{8}$ -inch, 1100 feet.....	20	1060
Lime, white .....	20	1080
Slate, blue, caves.....	20	1100
Lime, with show oil.....	5	1105
Slate, blue .....	10	1115
Sand, water .....	10	1125
<i>Lower Mississippian sub-system</i>		
Lime, broken .....	20	1145
Lime, with water in 1300.....	230	1375
Slate, white .....	25	1400
Lime .....	50	1450
Slate, blue .....	50	1500
Lime, blue .....	25	1525
Lime, white .....	75	1600
Slate, blue .....	25	1625
Lime, white, hard, carried water.....	125	1750
Lime, white, bottom of lime formation.....	20	1770
Shale, blue .....	5	1775
Lime, blue .....	20	1795
Shale, red .....	5	1800
Shale, white .....	5	1805
Lime, blue 5 3/16-inch, set 1820.....	15	1820
Lime, broken .....	10	1830
<i>Sweetland Creek shale</i>		
Shale, broken .....	10	1840
Shale, black .....	60	1900
Shale, black .....	50	1950
Lime, gray .....	5	1955
Shale, black .....	40	1995
<i>Silurian system</i>		
Lime and flint.....	10	2005
Cavity with white mud.....	5	2010
Lime and flint.....	16	2026
Lime, softer, light buff sandy.....	10	2036
Lime and flint.....	4	2040

No. 3

*Lincoln Oil and Gas Co.—No. 3*

*Parish farm, No. 1*

*SW.  $\frac{1}{4}$ , SE.  $\frac{1}{4}$ , SE.  $\frac{1}{4}$ , sec. 32, T. 17 N., R. 2 E.*

*Curb elevation—644 feet*

*Log based on study of samples*

	Thickness <i>Feet</i>	Depth <i>Feet</i>
Samples begin at 190 feet		
Limestone, argillaceous, light-gray, sandy; siltstone, light-gray, sandy; shale, green-gray, laminated, micaceous, sandy; everything pyritic .....	10	200
<i>Pennsylvanian system</i>		
Same, limestone most abundant; some carbonaceous soft, black shale, and carbonaceous bits all through sample.....	5	205



No. 3—*Continued*

Missing .....	10	215
Same, with some chalky white chert.....	5	220
Siltstone, gray, micaceous (muscovite) pyritic, calcareous, glauconitic, sandy, carbonaceous; coal, glossy, iridescent, dense, laminated, 50 per cent of sample.....	30	250
Siltstone as in preceding, dark gray, with faint chocolate cast and limonitic spots, laminated with some laminae gray and others carbonaceous .....	10	260
Same, less brownish.....	10	270
Same, very fine grained, distinctly light brown.....	10	280
Shale, black, fissile, filled with powdery, pyritic seams and impregnated with pyrite and mica.....	20	300
Missing .....	40	340
Limestone, light gray, finely crystalline with laminae of siltstone, dark calcareous; some soft white chert.....	5	345
Same, darker .....	5	350
Shale, mottled, light- and dark-gray, soft, poorly laminated, non-calcareous; some thin layers of harder, black, carbonaceous shale .....	5	355
Shale, highly calcareous, variegated red, purple and green-gray, the last being harder than the rest.....	5	360
Same, less red and purple, more gray with brown, so sample looks lighter colored; contains bits of white, calcareous segregations.	10	370
Same, dark green to light greenish-gray, with pyritic segregations along old plant remnants.....	10	380
Same, dark purplish-brown, with an abundance of small pyritized fossils, some of which show impressions.....	10	390
Same, darker, less purple.....	10	400
Missing .....	25	425
Limestone, light drab, medium crystalline, good fossils of small brachiopods; shale, non-calcareous, dark green or brownish, poorly laminated; remnants of plant fragments.....	5	430
Shale, greenish-gray, while larger fragments are rich chocolate or purplish; non-calcareous .....	10	440
Shale, dark, in fragments, light-greenish gray in cuttings; hard, non-laminated when fresh, non-calcareous.....	20	460
Same .....	14	475
<i>Horizon of No. 5 coal</i>		
Shale, black, carbonaceous, poorly fissile; rounded fragments of chert and limestone that may be surficial.....	5	480
Siltstone, greenish-gray, abundant pyrite in small crystals; some shale, greenish or black, probably from above.....	20	500
Shale, bluish-black, carbonaceous, soft.....	20	520
Shale, light greenish-gray; limestone, dark gray, crystalline.....	20	540
Shale, black, carbonaceous, fissile, combustible.....	10	550
Missing .....	1110	1660
<i>Lower Mississippian system</i>		
Limestone, blue-gray, finely crystalline, granular with fragments of fine-grained, bluish fissile siltstone and a little chalky chert..	5	1665
Missing .....	1665	1960
<i>Sweetland Creek shale</i>		
Siltstone, fine grained, or silty shale, non-calcareous, fissile, fragile, dark-blue or brown-black, with sand grains of medium size and angular contour, and with large rosin-like spores.....	2	1962
Shale, dark chocolate-brown or light-green, hard, fissile, spores abundant, especially in brown; fragments of a crystalline rock, either black and white quartzite or pyroxenite, probably foreign, as are other fragments of quartz, etc., in sample.....	8	1970
Same, all black, with foreign material.....	10	1980
Same, some rusty brown.....	5	1985

No. 3—*Concluded*

Same, with much foreign material ground up and looks like sandstone; the shale is mainly dark, almost black, dense, non-fissile, but brittle, breaking into angular fragments; sandstone, fine grained, gray, heavily pyritic; limestone, bluish gray, very cherty, the chert dense, bluish white or blue; large iron flakes; some purple shale.....	10	1995
<i>Silurian system</i>		
Shale, 60 per cent, dark green, brittle, dense, non-laminated; 10 per cent limestone, blue-gray, pyritic, sandy; 30 per cent blue or blue-white dense chert.....	5	2000
Limestone, light bluish gray, sandy, finely crystalline, rusty from drill cuttings and with much dense bluish-white chert, and shale from above; the sand grains are large, sub-angular.....	2	2004
Same, less rusty.....	2	2004
Siltstone, light gray greenish tinge, fine grained, sandy calcareous	1	2005
Same, chert is dark blue; limestone is light-gray, rusty, pyritic..	..	2005
Fragments shot from well showing light bluish-gray, finely crystalline limestone and dense blue chert with white coating..	20	2010
Mainly blue chert, with greenish, pyritic siltstone, angular quartz sand grains and some limestone as before, and calcite crystals.	..	2010
Same as fragments, 1990-2010 feet.....	5	2015
Same, chert, probably 70 per cent, with some greenish-gray siltstone and black shale.....	2	2017
Same, more siltstone.....	1	2018
Fragments from second shot, same as from first shot.....	9 ?	2018
Same, sandy .....	2	2020
Odor of oil.....	2	2022
Mostly chert with a quantity of green, siliceous, non-laminated, soft shale and some hard brown laminated shale. Shale may be cavings. Some dolomite and calcite, a few sand grains and a little pyrite .....	4	2026
Chert and fine-grained, sandy dolomite and dark-gray, hard shale, somewhat laminated .....	2	2028
Chert and fine grained sandy dolomite; some calcite and pyrite, slightly less chert. Slight smell of oil.....	4	2032
Fine-grained, sandy dolomite, cream colored with very little chert; some siliceous cement present. Porosity small.....	4	2037
Dolomite sandy, fine-grained with equal quantity of chert. Little calcite and pyrite.....	3	2040

No. 4

*Pennsylvanian system*

<i>Powers Well—northeast of Decatur</i>			White shale .....	5	140
<i>Cen. W. ½, W. ½, SW. ¼, sec. 1, T. 16 N., R. 2 E.</i>			Limestone .....	15	155
<i>Curb elevation—691 feet</i>			White shale .....	55	210
			Red shale .....	10	220
			Brown shale .....	25	245
			White shale .....	5	250
			Brown shale .....	5	255
<i>Pleistocene system</i>			Gritty shale .....	10	265
Clay .....	40	40	Black shale .....	7	272
Cement gravel .....	25	65	White shale .....	26	298
Quick sand .....	20	85	White limestone .....	19	317
Clay and gravel.....	5	90	Black shale .....	18	335
Black mud .....	10	100	White limestone .....	5	340
Quick sand .....	15	115	White shale .....	7	347
Sandy clay .....	5	120	White shale .....	13	360
Quick sand .....	10	130	Black slate .....	45	405
Black mud .....	5	135	White shale .....	35	440



No. 4—*Concluded*

White limestone .....	10	450
Red shale .....	20	470
Blue lime .....	10	480
White shale .....	10	490
Red shale .....	7	497
Black shale .....	21	518
Gray limestone .....	36	554
White slate .....	31	585
Black slate .....	6	591
Coal (No. 5) .....	5	596
Fire clay .....	4	600
White slate .....	20	620
White limestone .....	1	621
White shale .....	24	645
Black shale .....	35	680
Gritty shale .....	40	720
Black shale .....	20	740
Gritty shale with salt		
water .....	20	760
White sand .....	40	800
Black shale .....	2	802
Coal .....	3	805
Broken sand and water....	31	836
Black shale .....	10	846
White shale .....	46	892
Gritty shale .....	144	1036
Broken sand .....	9	1045
<i>Mississippian system</i>		
<i>Chester series</i>		
White limestone .....	60	1105
Black shale .....	5	1110
Red shale .....	10	1120
Gritty shale .....	10	1130
White shale .....	20	1150
Gritty shale .....	10	1160
Slate .....	10	1170
Sand and salt water.....	5	1175
<i>Partial log of same well from study</i>		
<i>of samples</i>		
Coal .....	7	809
Shale, light, sandy.....	5	814
Slate, black .....	5	819
Limestone .....	5	824
Sand, shale, coarse.....	10	834
Shale, light, gritty.....	5	839
Slate, hard .....	85	924
Sand, coarse .....	20	944
Shale, white and black,		
oily smell .....	10	954
Shale, dark .....	5	959
Shale, hard .....	5	964
Shale, sandy .....	5	969
Sand .....	15	984
Sand, brown, little shale...	5	989
Limestone .....	11	1000
Missing .....	70	1070
Limestone .....	40	1110

No. 5

*Lincoln Oil Co.—No. 1*

*Caroline Powers*

NW. cor., SE. 1/4, NE. 1/4, sec. 5, T.  
16 N., R. 2 E.

Curb elevation—620 feet

*Driller's log*

	Thickness <i>Feet</i>	Depth <i>Feet</i>
<i>Pennsylvanian system</i>		
White slate .....	79	200
Lime .....	10	210
Blue slate .....	40	250
White slate .....	40	290
Lime .....	10	300
White slate .....	40	340
Red shale .....	15	355
White slate .....	20	375
Black shale, set 10 in.		
pipe at 385 feet.....	15	390
White shale .....	60	450
Blue shale .....	25	475
<i>Horizon of No. 5 coal</i>		
White shale .....	10	485
Lime (shell) .....	5	490
White slate .....	60	550
Black slate with little		
water .....	15	565
Brown slate .....	65	630
Coal .....	5	635
Black shale .....	5	640
Lime (shell) .....	5	645
White slate .....	15	660
Lime .....	5	665
Brown slate .....	25	690
Black slate .....	20	710
White slate .....	65	775
Black slate .....	15	790
Lime .....	5	795
Brown slate .....	10	805
Black slate .....	65	870
<i>Mississippian system</i>		
<i>Upper Mississippian sub-system</i>		
<i>Chester series</i>		
Lime .....	25	895
Slate, white .....	15	910
Red shale .....	15	925
White shale .....	20	945
Lime .....	15	960
Red rock .....	40	1000
White slate, set 8 in. pipe		
at 1055 .....	55	1055
Salt sand .....	10	1065
Salt sand with lots of		
water .....	30	1095

No. 5— <i>Concluded</i>				Blue lime .....	25	1765
<i>Lower Mississippian sub-system</i>				Blue slate .....	10	1775
Lime .....	65	1160		Red slate .....	10	1785
Brown lime .....	40	1200		White shale .....	15	1800
Red lime .....	10	1210		Brown lime .....	5	1805
Black lime .....	20	1230		Gray lime .....	10	1815
Black lime .....	85	1315		Blue slate, set 6 7/8 in. pipe		
Blue lime .....	35	1350		at 1820 .....	5	1820
Yellow lime .....	15	1365		<i>Sweetland Creek shale</i>		
Blue lime .....	65	1430		Brown shale .....	163	1983
Blue slate (break) .....	170	1600		<i>Silurian system</i>		
Lime .....	40	1640		Lime .....	23	2006
White lime .....	100	1740		Show oil sand .....	60	2066

No. 5

*Lincoln Oil Co.—No. 1*

*Caroline Powers*

NW. cor. SE. 1/4, NE. 1/4, sec. 5, T. 16 N., R. 2 E.

Curb elevation—620 feet

*Partial log based on study of samples*

	Thickness	Depth
	<i>Feet</i>	<i>Feet</i>
<i>Mississippian system</i>		
<i>Upper Mississippian sub-system</i>		
<i>Chester series</i>		
Sand, angular, sub-angular and round, clear white.....	30	1095
<i>Lower Mississippian sub-system</i>		
Limestone, fine grained, dense white. Sample about 50 per cent sand like above.....	65	1160
Dolomite, fine grained, dense, black-brown, with fragments of white limestone and rounded, white quartz.....	40	1200
Limestone, fine grained, dense, gray-brown, with white limestone and clear quartz fragments.....	11	1211
Limestone, granular, crystalline, gray-black and brown. On solution in HCl leaves thin black laminae which may be carbonaceous in composition as well as containing considerable argillaceous material. Few fragments of white limestone. Quartz grains common .....	20	1230
Same, but black laminae fewer and very small.....	85	1315
Limestone, fine grained, bastard limestone and very fine grained gray sandstone. 73 per cent insoluble in HCl.....	35	1350
Sandstone, very fine, buff calcareous. 98 per cent insoluble in HCl .....	15	1365
Sandstone, very fine-grained, gray calcareous. 67 per cent insoluble in HCl.....	65	1430
Shale, gray clay, slightly calcareous.....	170	1600
Dolomite, porous, argillaceous, gray.....	15	1615
Limestone, white, granular, oolitic (?).....	..	1615
Limestone, granular gray-white with much blue chert. Sample about 70 per cent chert.....	15	1655
Limestone, granular white with much blue-white chert and a few small, angular, clear sand grains.....	95	1740
Quartz, clear angular; chert, white, and shale, greenish-gray calcareous. About equal amounts of each.....	25	1765





No. 6— <i>Concluded</i>			Lime .....	20	1835
			<i>Sweetland Creek shale</i>		
Slate, black .....	5	1070	Shale, brown .....	149	1984
Lime .....	10	1080	<i>Silurian system</i>		
<i>Lower Mississippian sub-system</i>			Oil sand .....	96	2080
Lime, hard .....	70	1150	Lime, blue .....	120	2200
Lime .....	10	1160	Lime and sand, little		
Lime, brown .....	40	1200	water .....	40	2240
Lime, black .....	25	1225	Water and oil (?).....	5	2245
Lime, gray .....	55	1280	Lime .....	55	2300
Lime, blue .....	75	1355	Lime .....	85	2385
Lime, yellow .....	10	1365	<i>Ordovician system</i>		
Lime .....	55	1420	<i>Maquoketa shale</i>		
Slate, blue .....	170	1590	Slate, blue .....	50	2435
Lime, blue .....	30	1620	Lime .....	65	2500
Lime .....	45	1665	Slate, brown .....	70	2570
Lime, white .....	75	1740	<i>"Trenton" formation</i>		
Lime, blue .....	20	1760	Rock (Oil show 2625-		
Slate, white .....	55	1815	2700 .....	230	2800

No. 6

*Lincoln Oil and Gas Co.—No. 2*

*Caroline Powers farm*

*SW. 1/4, NE. 1/4, sec. 5, T. 16 N., R. 2 E.*

*Curb elevation—631 feet*

*Log based on study of samples*

	Thickness Feet	Depth Feet
<i>Pennsylvanian system</i>		
Limestone, medium to light gray, subcrystalline, some fossil fragments noted, either small stems or spines; some pyrite and gray shale and sand grains.....	15	205
Missing .....	660	865
<i>Mississippian system</i>		
<i>Chester series</i>		
Limestone, medium-gray, subcrystalline, medium grained; a dark gray shale, hard, some greenish shale, some sand and pyrite..	15	880
Missing .....	140	1020
Mixture of fine-grained, angular sandstone and dark and medium-grained shale, some limestone, some red shale, some pyrite....	15	1035
Shale, light grayish-green, calcareous, some fine grit.....	3	1038
Sandstone, fine-grained, angular, some about 1/5 shale like last; some red to purple shale; some limestone fragments.....	10	1048
Shale, medium-gray, hard, smooth, some pyrite.....	12	1060
Missing .....	5	1065
Shale, darker than last, brownish-gray, some limestone, some sand	5	1070
Sandstone, light-gray, fine calcareous, shaly, some dark shale, some pyrite .....	10	1080
<i>Ste. Genevieve, St. Louis-Salem limestone</i>		
Limestone, light tan-gray, fine grained, dense, a coarsely plicated fossil fragment noted (probably a <i>Spirifer</i> ), some fine angular sand, shale, pyrite and limonite.....	70	1150
Limestone, mixture of dark tan limestone and white limestone, some sand, shale and pyrite. Some small fragments adhere to some larger ones and are brown, giving the appearance of a lump of brown sugar (oil?).....	10	1160



No. 6—*Concluded*

Limestone, dark, some tan-gray and some gray, fine-grained, dense, impure, some gray shale.....	40	1200
Limestone, dark gray, dense, siliceous. Some fossil fragments noted, among them a crinoid stem, occasional shale or chert fragments and sand grains.....	5	1225
Limestone, medium-gray, fine-to medium-grained, subcrystalline, some darker limestone.....	55	1280
Limestone, darker than last. Some almost black, some sand....	75	1355
<i>Osage-Warsaw? formations</i>		
Sandstone, exceedingly fine, angular sand, brownish gray, some shale and limestone.....	10	1365
Mixture of shale and gray, subcrystalline limestone, some fine sand .....	55	1420
Shale, medium gray, smooth hard.....	170	1590
Limestone, gray, impure, shaly, fine-grained; some darker gray shale .....	30	1620
<i>Keokuk-Burlington limestone</i>		
Limestone, light-gray, subcrystalline, about ½ dark or light chert	45	1665
Limestone, light-gray, subcrystalline, sample about 1/3 chert....	85	1740
Limestone, light-gray and light-green, subcrystalline limestone, about ½ gray and pink chert.....	20	1760
Shale, light-gray, slight greenish cast, calcareous.....	55	1815
Limestone, light greenish-gray, shaly, some gray shale, some chert.	20	1835
<i>Sweetland Creek shale</i>		
Shale, hard, dark-gray, smooth; some greenish-gray, some limestone and chert fragments.....	40	1875
Shale, hard, chocolate-brown, containing <i>Sporangites huronensis</i> ..	46	1921
<i>Silurian system</i>		
Missing .....	139	2060
Limestone, dark-gray, fine-grained, dense, shaly; some pyrite and shale; some mica.....	120	2180
Limestone, dark, greenish-gray, shaly and light gray, crystalline limestone .....	20	2200
Like preceding, some greenish-gray shale.....	45	2245
Limestone, light-gray, sample has slight green cast, subcrystalline to crystalline; some darker sugary limestone.....	35	2280
Limestone, light-gray, subcrystalline; some green shale, some chert	25	2300
Missing .....	15	2315
Like the last, slightly darker.....	15	2330
Limestone, medium-gray, subcrystalline, medium to coarse grains; some pinkish limestone, some green and gray shale and pyrite.	20 ?	2340
Like preceding, slightly darker; no pink limestone.....	10	2350
Limestone, tan-gray, subcrystalline; some chert, pyrite and shale, one green speck in the limestone noted.....	25	2375
<i>Ordovician system</i>		
<i>Maquoketa shale</i>		
Shale, medium-gray, hard, smooth, silt shale, some limestone fragments .....	60	2435
Like preceding, about 1/3 limestone.....	15	2450
<i>Kimmswick-Plattin ("Trenton")</i>		
Limestone, dolomitic, light, tan-gray, subcrystalline, about ½ of sample is gray shale.....	130	2280
Like preceding, slightly less shale.....	25	2605
Limestone, dolomitic, light tan-gray, subcrystalline to crystalline, medium-grained, some gray shale.....	15	2620
Like preceding, less shale.....	40	2660

No. 7	
<i>Pfeiffer farm—No. 3</i>	
<i>SE. ¼, NW. ¼, NE. ¼, sec. 5, T. 16 N., R. 2 E.</i>	
Curb elevation—664 feet	
	Thickness Ft. in.
<i>Pleistocene system</i>	
Soil .....	30 ...
Gravel and sand....	120 ...
<i>Pennsylvanian system</i>	
Slate .....	45 ...
Black shale .....	20 ...
White limestone ...	32 ...
Black shale .....	11 ...
White limestone ....	4 ...
White shale .....	38 ...
White limestone ...	5 ...
White shale .....	35 ...
White limestone ....	10 ...
Black shale .....	5 ...
White shale .....	10 ...
White limestone ...	13 ...
Coal .....	2 ...
White shale .....	10 ...
Red rock .....	4 ...
Brown shale .....	15 ...
White shale .....	11 ...
Blue shale .....	25 ...
White shale .....	28 ...
Blue limestone .....	5 ...
White shale .....	38 ...
<i>Horizon of No. 5 coal</i>	
Black shale .....	3 ...
White shale .....	40 ...
Black slate .....	2 ...
White shale .....	3 ...
Brown shale .....	56 ...
Black shale .....	65 ...
Sandy shale .....	25 ...
Black shale .....	5 ...
Limestone .....	23 ...
Black shale .....	3 ...
Limestone .....	9 ...
Black slate .....	6 ...
White shale mixed with shells of lime- stone .....	9 ...
Black shale .....	14 ...
Blue limestone .....	9 6
Blue shale .....	8 6
White shale .....	6 ...

No. 8	
<i>Atlantic Oil and Gas Company</i>	
<i>Bledsoe farm—No. 1</i>	
<i>SW. ¼, SE. ¼, sec. 5, T. 16 N., R. 2 E.</i>	
Curb elevation—614.5 feet	
	Thickness Ft. in.
<i>Pleistocene system</i>	
Soil, soft drilling....	12 ...
Gravel, soft drilling..	9 ...
Clay, soft drilling....	9 ...
Cement gravel, hard drilling .....	20 ...
Quicksand, filled up in pipe .....	18 ...
Red mud, soft drilling	5 ...
Clay, yellow, soft drilling .....	17 ...
Mud, brown, soft drill- ing .....	15 ...
<i>Pennsylvanian system</i>	
Shale, blue, soft drill- ing .....	30 ...
Shale, blue .....	20 ...
Shale, brown .....	15 ...
Shale, blue .....	5 ...
Shale, hard .....	15 ...
Lime, gray, hard....	7 ...
Shale, blue, soft....	8 ...
Lime, gray, hard....	9 ...
Shale, soft .....	76 ...
Lime, gray, hard....	10 ...
Shale, soft .....	37 ...
Lime, gray, hard....	6 ...
Red rock, soft....	12 ...
Lime, hard .....	8 ...
Shale, white, soft....	7 ...
Lime, blue, soft....	25 ...
Shale .....	10 ...
Lime, hard .....	4 ...
Shale, blue, hard....	26 ...
Lime, hard .....	10 ...
Shale, white .....	15 ...
Shale, black or dark.	20 ...
<i>Horizon of No. 5 coal</i>	
Shale, white .....	35 ...
Lime, hard .....	3 ...
Shale, blue .....	7 ...
Shale, white, soft....	35 ...
Shale, gray, soft....	10 ...



No. 8—*Concluded*

Shale, brown	55	630
Shale, white	5	635
Shale, black, hard	25	660
Shale, gray, soft	20	680
Shale, black	5	685
Lime, hard	20	705
Shale, brown	10	715
Lime, gray	18	733
Shale, blue	7	740
Shale, gray, hard	10	750
Shale, blue, soft	75	825
Shale, black	55	850
Shale, gray	25	875
Shale, white	10	885

*Mississippian system*

*Upper Mississippian sub-system*  
*Chester series*

Lime	35	920
Red rock	10	930
Shale, dark	5	935
Lime, gray	15	950
Shale, gray	15	965
Lime, hard	5	970
Shale, blue	20	990
Red rock	5	995
Lime, hard	5	1000
Red rock	10	1010
Sand water, white	20	1030
Shale, white	35	1065
Sand water, white	25	1090
Shale, white	3	1093

*Lower Mississippian sub-system*

Lime, gray	87	1180
Lime, red	10	1190
Lime, blue	35	1225
Lime, brown	25	1250
Lime, blue	10	1260
Lime, brown	5	1265
Lime, gray	17	1287
Slate, blue	3	1290
Lime, gray	30	1320
Coal	2	1322
Lime, gray, sandy	28	1350
Lime, brown	5	1355
Lime, gray	50	1405
Slate, blue	15	1420
Lime, gray, sandy	30	1450
Slate, white	57	1507
Lime, gray	13	1520
Slate, gray, sandy	20	1540
Lime	10	1550
Slate, gray	75	1625
Lime, white, hard	105	1730
Lime, blue, hard	65	1795

Red rock	5	1800
Lime, brown, hard	12	1812
Slate, gray, soft	20	1832
Lime, gray, hard	23	1855
<i>Sweetland Creek shale</i>		
Shale	25	1880
Lime, gray	5	1885
Shale, brown	103	1988
<i>Silurian system</i>		
Lime	10	1998
Producing oil sand	6	2004
Lime, flinty	28	2032
Sand, showing oil	30 6	2062 6

No. 9

*Well located 2½ miles S. and ¼ mile East of Pfeiffer well (No. 8)*

*NE. cor. SE. ¼, SE. ¼, sec. 8, T. 16 N., R. 2 E.*

Curb elevation—602 feet

	Thickness <i>Ft. in.</i>	Depth <i>Ft. in.</i>
<i>Pleistocene system</i>		
Soil	20	20
White mud	50	70
Quick sand	15	85
Yellow mud	15	100
Black mud	20	120
White mud	10	130
Blue mud	5	135
Black mud	25	160
Brown mud	10	170
<i>Pennsylvanian system</i>		
Limestone	5	175
Black shale	25	200
Limestone	10	210
White shale	5	215
Brown shale	85	300
White shale	20	320
White limestone	15	335
Brown shale	15	350
White limestone	10	360
Red rock	9	369
White shale	15	384
Brown shale	16	400
White shale	114	514
Coal (No. 5)	2	516
Brown shale	44	560
Gray shale	73 6	633 6
Hard shell	2	635 6
Coal	4 6	640
White shale	40	680
Black shale	40	720

No. 10					
<i>Decatur Coal Company—Shaft No. 1*</i>			Shale, argillaceous,		
<i>Sec. 11?, T. 16 N., R. 2 E.</i>			nodular . . . . . 15 . . . 444 3		
Curb elevation—672 feet			Shale, argillaceous,		
			slaty . . . . . 19 . . . 463 3		
			Limestone, hard,		
			gray . . . . . 17 . . . 480 3		
			Shale, soft . . . . . 1 6 481 9		
			Shale, bituminous . . . 1 . . . 482 9		
			Shale, argillaceous . . 4 6 487 3		
			Shale, brown . . . . . 6 487 9		
			Shale, calcareous . . . 9 3 497 . .		
			Limestone, argilla-		
			ceous . . . . . 2 . . . 499 . .		
			Shale, calcareous . . . 3 3 502 3		
			Shale, red, variegated 9 . . . 511 3		
			Shale, gray, argilla-		
			ceous . . . . . 18 . . . 529 3		
			Shale, bituminous . . 3 3 532 6		
			Shale, gray, argilla-		
			ceous . . . . . 1 3 533 9		
			Shale, bituminous . . 1 6 535 3		
			Shale, gray, calcare-		
			ous . . . . . 6 . . . 541 3		
			Shale, bituminous . . 1 . . . 542 3		
			Coal and limestone . . 1 . . . 543 3		
			Shale, bituminous . . . 6 543 9		
			Limestone, soft . . . . 1 . . . 544 9		
			Shale, argillaceous . . 2 . . . 546 9		
			Shale, bituminous . . . 7 547 4		
			Coal . . . . . 8 548 . .		
			Shale, gray . . . . . 9 548 9		
			Limestone, argilla-		
			ceous . . . . . 6 9 555 6		
			Shale . . . . . 6 556 . .		
			Limestone . . . . . 2 10 558 10		
			Coal . . . . . 6 559 4		
			Shale, blue and gray 14 5 573 9		
			Sandstone, marly . . . 1 6 575 3		
			Shale, calcareous . . . 5 . . . 580 3		
			Sandstone . . . . . 15 . . . 595 3		
			Slate, gray . . . . . 5 9 601 . .		
			Shale, bituminous . . 2 3 603 3		
			Coal (No. 5) . . . . . 3 6 606 9		
			Fire clay . . . . . 2 . . . 608 9		
			Missing . . . . . 47 3 657 . .		
			Limestone . . . . . 3 . . . 660 . .		
			Coal . . . . . 2 . . . 662 . .		
			Missing . . . . . 20 . . . 682 . .		
			Limestone . . . . . 3 . . . 685 . .		
			Missing . . . . . 35 . . . 720 . .		
			Coal . . . . . 2 . . . 722 . .		
			Missing . . . . . 27 . . . 749 . .		
			Coal . . . . . 1 . . . 750 . .		
			Missing . . . . . 33 . . . 783 . .		
			Coal . . . . . 2 . . . 785 . .		
			Missing . . . . . 20 . . . 805 . .		
			Coal . . . . . 5 . . . 810 . .		
			Missing . . . . . 29 . . . 839 . .		
			Coal . . . . . 1 . . . 840 . .		
			Missing . . . . . 13 . . . 853 . .		
			Limestone . . . . . 2 . . . 855 . .		

\* Record of shaft to a depth of 603 feet 9 inches is taken from Vol. VII, p. 17 of the Ill. Geological Survey Worthen reports. The remainder of the log represents estimated thicknesses and depths and should not be considered as accurate.



No. 11

*Decatur Coal Company—Shaft No. 2*  
NW.  $\frac{1}{4}$ , SW.  $\frac{1}{4}$ , sec. 14, T. 16 N.,  
R. 2 E.

Curb elevation—667 feet

	Thickness Ft. in.	Depth Ft. in.
<i>Pleistocene system</i>		
Soil and loamy clay.	25 ...	25 ..
Sand and water (flow of 400 gallons per minute) .....	30 ...	55 ..
Clay, blue .....	4 ...	59 ..
Drift wood and soil..	2 ...	61 ..
Sand, green .....	4 ...	65 ..
Sand, gray .....	6 ...	71 ..
Clay, hard blue.....	9 ...	80 ..
Sand and gravel....	53 ...	133 ..
<i>Pennsylvanian system</i>		
Hardpan .....	23 ...	156 ..
Sandstone .....	1 6	157 6
Shale, soft .....	6 ...	163 6
Shale, gray and blue sandy .....	28 ...	191 6
Clay shale .....	15 ...	206 6
Slate, blue .....	7 ...	213 6
Fire clay, ferruginous	6 ...	219 6
Conglomerate lime- stone .....	7 ...	226 6
Slate, brown .....	10 ...	236 6
Flint stone .....	2 6	239 ..
Slate, black .....	1 ...	240 ..
Flint rock .....	2 6	242 6
Coal .....	.. 10	243 4
Fire clay .....	8 ...	251 4
Shale, blue sandy...	10 ...	261 4
Flint stone .....	3 ...	264 4
Clay shale .....	5 ...	269 9
Shale, sandy .....	21 ...	290 4
Slate, black .....	2 6	292 10
Coal .....	1 ...	293 10
Fire clay .....	6 ...	299 10
Shale, black and 1 inch of coal.....	8 1	307 11
Fire clay .....	6 ...	313 11
Shale, black .....	3 ...	316 11
Limestone, impure .	1 ...	317 11
Shale, brown .....	8 ...	325 11
Sandstone .....	1 ...	326 11
Slate, black .....	4 ...	330 11
Flint stone .....	11 ...	341 11
Slate, black .....	12 ...	353 11
Fire clay .....	4 ...	357 11
Limestone .....	10 ...	367 11
Slate, black .....	2 ...	369 11
Fire clay .....	8 ...	377 11
Clay shale .....	13 ...	390 11
Sandstone .....	5 ...	395 11
Flint stone .....	2 ...	397 11
Slate, blue .....	8 ...	405 11

Shale, clay .....	31 ...	436 11
Sandstone, blue .....	1 ...	437 11
Slate, black .....	3 ...	440 11
Coal .....	1 4	442 3
Fire clay .....	6 ...	448 3
Shale, sandy .....	10 ...	458 3
Shale, black .....	33 ...	491 3
Slate, hard black ...	5 ...	496 3
Coal (local) .....	.. 3	496 6
Fire clay .....	4 ...	500 6
Limestone .....	11 ...	511 6
Shale, black .....	4 ...	515 6
Shale, clay .....	2 ...	517 6
Coal .....	4 ...	517 10
Fire clay .....	2 ...	519 10
Conglomerate stone..	3 ...	522 10
Clay shale, gray and blue .....	14 ...	536 10
Slate, black, and $\frac{1}{2}$ inch coal .....	4 ...	540 10
Fire clay .....	4 ...	544 10
Sandstone .....	7 ...	551 10
Shale, gray .....	6 ...	557 10
Slate, black .....	2 ...	559 10
Coal .....	1 4	561 2
Clay shale .....	.. 6	561 8
Coal .....	2 10	564 6
Shale, hard gray ...	8 ...	572 6
Limestone .....	2 6	575 ..
Bituminous shale and coal .....	6 ...	575 6
Fire clay .....	4 ...	579 6
Sandstone .....	17 ...	596 6
Clay shale .....	3 ...	599 6
Sandstone .....	13 ...	612 6
Clay shale, dark.....	8 ...	620 6
Slate, black .....	1 6	622 ..
Coal (No. 5) .....	4 6	626 6

No. 12

*Manufacturers and Consumers Coal*  
*Co.—Shaft No. 1\**

NE. cor., sec. 22, T. 16 N., R. 2 E.

Elevation—614.78 feet

Partial log

	Thickness Ft. in.	Depth Ft. in.
Limestone .....	5 ...	150 ..
Coal .....	.. 8	208 ..
Limestone .....	10 ...	250 ..
Limestone .....	8 ...	275 ..
Coal .....	1 6	348 ..
Limestone .....	8 ...	408 ..
Limestone .....	15 ...	440 ..
Coal .....	1 6	486 6
Fire clay .....	3 ...	489 6
Coal .....	1 6	491 ..
Limestone .....	3 ...	510 ..
Coal .....	4 2	560 ..

\*Thicknesses and depths are approximate.

No. 13  
*Manufacturers and Consumers Coal*  
*Co.—Shaft No. 2\*.*  
*NE. cor. sec. 22, T. 16 N., R. 2 E.*  
Curb elevation—615 feet  
Partial log

	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
Ccal .....	10	240 ..
Coal .....	12	295 ..
Limestone .....	10	340 ..
Limestone .....	15	365 ..
Coal .....	18	435 ..
Coal .....	3	495 ..
Limestone .....	10	505 ..
Coal .....	5	560 ..

No. 14		
<i>Niantic Coal Co.—Shaft</i>		
<i>SW. cor. NW. ¼, sec. 12, T. 16 N,</i> <i>R. 1 W.</i>		
Curb elevation—601.5 feet		
	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Soil and brown clay.	11 ...	11 ..
Sand and gravel.....	4 ...	15 ..
Gravelly hard pan...	25 ...	40 ..
Blue hard pan .....	10 ...	50 ..
Soft clay .....	15 ...	65 ..
Gray hard pan.....	10 ...	75 ..
Soft brown clay.....	7 ...	82 ..
<i>Pennsylvanian system</i>		
Limestone .....	10 ...	92 ..
Blue flinty rock.....	2 ...	94 ..
Black slate .....	3 ...	97 ..
Fire clay .....	6 ...	103 ..
Limestone .....	10 ...	113 ..
Blue and gray shale.	7 ...	120 ..
Black shale .....	1 ...	121 ..
Coal .....	2	121 2
Fire clay .....	1 ...	122 2
Nodular limestone ..	5 ...	127 2
Clay shale .....	5 ...	132 2
Soft blue sandstone..	16 ...	148 2
Gray shale .....	42 ...	190 2
Coal .....	1 3	191 5
Fire clay .....	2 6	193 11
Sandstone .....	10 ...	203 11
Gray shale .....	45 ...	248 11
Hard flinty rock.....	10 ...	258 11
Black shale .....	3 ...	261 11
Fire clay .....	9 ...	270 11

Blue and red shales.	15 ...	285 11
Black slate .....	5 ...	290 11
Coal .....	1 3	292 2
Fire clay .....	4 6	296 8
Black shale .....	11 ...	307 8
Coal .....	2 6	310 2
Clay shale .....	15 ...	325 2
Black shale .....	3 ...	328 2
Coal (local) .....	10	329 ..
Fire clay .....	2 ...	331 ..
Gray shale .....	14 ...	345 ..
Hard black rock,		
(limestone) .....	1 ...	346 ..
Black slate .....	3 ...	349 ..
Coal (No. 5) .....	5 6	354 6

No. 17  
*Kelley well*  
*NE. cor., SE. ¼, NE. ¼, sec. 30, T.*  
*15 N., R. 2 E.*

Curb elevation—692 feet		
	Thickness	Depth
	<i>Feet</i>	<i>Feet</i>
<i>Pleistocene system</i>		
Drift .....	176	176
<i>Pennsylvanian system</i>		
Brown shale.....	59	235
Black shale.....	10	245
Blue shale.....	7	252
Limestone .....	8	260
White shale .....	9	269
Sandstone .....	20	289
Black shale.....	15	304
Blue shale.....	11	315
Limestone .....	5	320
Blue shale.....	5	325
Limestone .....	15	340
Black shale.....	16	356
Limestone .....	8	364
Blue shale.....	12	376
White shale.....	11	387
Brown shale.....	12	399
Sandstone .....	5	404
Brown shale.....	31	435
White shale.....	25	460
Brown shale .....	28	488
Limestone .....	30	522
Blue shale.....	23	545
Black shale.....	15	560
Limestone .....	12	572
Black shale.....	8	580
Limestone .....	3	583
Blue shale.....	18	601
White shale.....	12	613
Black shale.....	7	620
Limestone .....	3	623
Blue shale.....	37	660

\*Thicknesses and depths are approximate.



No. 17—*Concluded*

<i>Horizon of No. 5 coal</i>		
Black shale.....	10	670
White shale .....	33	703
Blue shale.....	22	725
Brown shale.....	50	775
Black shale.....	8	783
Blue shale .....	53	836
Limestone .....	6	842
Brown shale.....	70	912
Black shale.....	58	970
Blue shale.....	52	1022
Black shale.....	5	1027
Sandstone .....	30	1057
Blue shale.....	6	1063
Black shale.....	10	1073
Blue shale.....	5	1078
Black shale.....	12	1090
<i>Mississippian system</i>		
<i>Chester series</i>		
Limestone .....	40	1130
Blue shale.....	18	1148
Red shale.....	8	1156
Limestone .....	2	1158
White shale.....	12	1170
Blue shale.....	13	1183
Limestone .....	4	1187
Blue shale...	51	1238
Red shale.....	4	1242
Limestone and salt water.	18	1260
White shale.....	6	1266
Sandstone .....	37	1303
Red shale and salt water.	5	1308

No. 18

*Blue Mound well*

NW. cor. NE. ¼, SW. ¼, sec. 32, T.  
15 N., R. 1 E.

Curb elevation—607 feet

	Thickness	Depth
	<i>Ft. in.</i>	<i>Ft. in.</i>
<i>Pleistocene system</i>		
Clay and sand.....	18 ...	18 ..
Sand .....	5 ...	23 ..
Clay, coarse gravel..	3 ...	26 ..
Cemented clay, gravel	5 ...	31 ..
Blue clay .....	22 ...	53 ..
Cemented clay, gravel	3 ...	56 ..
Clay and sand.....	14 ...	70 ..
Cemented clay, gravel	3 ...	73 ..
Boulders and gravel.	2 ...	75 ..
Soft clay and shale.	23 ...	98 ..
Soft clay .....	1 ...	99 ..
<i>Pennsylvanian system</i>		
Black shale .....	1 ...	100 ..
Bone coal .....	.. 6	100 6
Soft clay and shale..	10 6	111 ..
Sand shale .....	3 ...	114 ..

Limestone .....	5 ...	119 ..
Sandstone .....	6 ...	125 ..
Clay shale .....	9 ...	134 ..
Clay shale .....	20 ...	154 ..
Clay shale .....	9 ...	163 ..
Clay shale with hard		
bands .....	22 ...	185 ..
Clay shale .....	6 ...	191 ..
Limestone .....	9 ...	200 ..
Blue clay shale.....	1 ...	201 ..
Black shale .....	4 ...	205 ..
Dark blue shale.....	7 10	212 10
Bone .....	.. 2	213 ..
Fire clay .....	5 ...	218 ..
Bastard limestone ..	7 ...	225 ..
Blue clay shale.....	7 ...	232 ..
Limestone .....	1 ...	233 ..
Light clay shale....	6 ...	239 ..
Sand and limestone		
mixed with shale..	5 ...	244 ..
Sandy shale .....	11 ...	255 ..
Sandy shale .....	5 ...	260 ..
Sand shale .....	8 ...	268 ..
Sand shale .....	7 ...	275 ..
Clay shale .....	16 ...	291 ..
Clay shale .....	10 ...	301 ..
Black shale .....	1 ...	302 ..
Coal .....	.. 6	302 6
Fire clay .....	1 6	304 ..
Clay shale .....	9 ...	313 ..
Clay shale with hard		
bands .....	17 ...	330 ..
Clay shale with hard		
bands .....	22 ...	350 ..
Black clay shale.....	15 ...	365 ..
Clay shale soft, with		
cave .....	12 ...	377 ..
Red soapstone, soft..	5 ...	382 ..
Red soapstone, soft..	3 ...	385 ..
Limestone .....	4 ...	389 ..
Clay shale .....	6 ...	395 ..
Clay shale .....	14 ...	409 ..
Clay shale .....	6 ...	415 ..
Clay shale .....	4 ...	419 ..
Clay shale .....	9 ...	428 ..
Dark blue shale.....	4 8	432 8
Coal .....	2 6	435 2
Fire clay .....	1 6	436 8
Coal .....	.. 8	437 4
Clay shale .....	13 8	451 ..
Limestone .....	4 6	455 6
Clay shale .....	4 3	459 3
Coal .....	3 6	463 3
Shale .....	1 3	464 6
Limestone .....	4 6	469 ..
Clay shale .....	10 ...	479 ..
Clay shale .....	7 ...	486 ..
Black shale .....	3 ...	489 ..
Coal, clean parting..	5 3	494 3
Fire clay .....	1 6	495 9
Clay shale .....	8 3	504 ..
Clay shale .....	14 ...	518 ..
Clay shale .....	12 ...	530 ..

No. 18—*Concluded*

Black shale .....	3 ...	533 ..
Coal (No. 5).....	1 8	534 8
Soft crumbly shale..	3 4	538 ..
Clay shale .....	5 ...	543 ..
Clay shale with hard bands .....	21 ...	564 ..
Clay shale with hard bands .....	18 ...	582 ..
Coal .....	3 6	585 6
Sand clay shale mixed	12 6	598 ..
Sand clay shale mixed	2 ...	600 ..
Black sandy shale..	2 ...	602 ..
Coal .....	1 5	603 5
Clay and sandy shale mixed .....	5 7	608 ..
Clay and sandy shale mixed .....	18 ...	626 ..
Clay shale .....	13 4	639 4
Coal .....	1 2	640 6
Mucky shale .....	1 6	642 ..
Mucky shale .....	1 ...	643 ..
Hard sandstone ....	9 ...	652 ..
Black shale .....	1 ...	653 ..
Coal .....	.. 3	653 3
Black shale .....	2 7	655 10
Coal mixed with sulphur .....	2 5	658 3
Fire clay .....	1 6	659 9
Clay shale .....	4 3	664 ..
Sandstone .....	4 ...	668 ..
Sandstone and sand shale mixed .....	15 ...	683 ..
Flowing salt water at	.. ...	670 ..
Clay shale with hard bands .....	7 6	690 6
Black shale .....	2 3	692 9
Coal .....	.. 6	693 3
Clay shale .....	1 9	695 ..
Clay shale .....	12 ...	707 ..
Clay shale .....	3 ...	710 ..
Sandstone \ .....	6 ...	716 ..
Black shale .....	3 ...	719 ..
Coal .....	.. 8	719 8
Clay shale .....	2 4	722 ..
Clay shale .....	14 ...	736 ..
Dark shale .....	2 ...	738 ..
Clay shale .....	2 ...	740 ..
Coal .....	.. 2	740 2
Clay shale .....	1 10	742 ..
Coal .....	.. 6	742 6
Clay shale .....	3 6	746 ..
Dark shale .....	3 ...	749 ..
Coal and sulphur....	.. 8	749 8
Sandstone and sand shale .....	10 4	760 ..
Dark clay shale.....	2 ...	762 ..
Dark clay shale.....	3 ...	765 ..
Black shale .....	7 ...	772 ..
Coal .....	.. 8	772 8
Clay shale .....	3 4	776 ..

Sandstone .....	3 ...	779 ..
Sand shale .....	10 ...	789 ..
Coal .....	3 ...	792 ..
Clay shale .....	1 ...	793 ..
Sandstone .....	14 ...	807 ..
Sandstone .....	11 ...	818 ..
Sand shale and clay shale mixed .....	6 ...	823 ..
Clay shale .....	12 ...	835 ..
Sandstone .....	5 ...	840 ..
Sandstone hard .....	10 ...	850 ..

No. 20

*Macon County Oil and Gas Co.*

*John M. Hill farm*

NW. 1/4, NE. 1/4, sec. 3, T. 14 N., R.  
2 E.

Curb elevation—701 feet

	Thickness Feet	Depth Feet
<i>Pleistocene system</i>		
Drift sand, gravel.....	160	160
<i>Pennsylvanian system</i>		
White shale .....	50	210
Blue shale .....	45	255
Limestone .....	5	260
White shale .....	40	300
Blue shale .....	30	330
Black shale .....	12	342
White shale .....	20	362
Limestone .....	18	380
Sandy brown shale.....	40	420
White shale .....	30	450
Blue shale .....	15	465
Limestone .....	20	485
White shale .....	30	515
Blue shale .....	40	555
Black shale .....	15	570
Blue shale .....	20	590
White shale .....	15	605
Limestone .....	5	610
White shale .....	4	614
Limestone .....	6	620
White shale .....	30	650
Limestone .....	2	652
Coal .....	4	656
Slate .....	1	657
White shale .....	30	687
<i>Horizon of No. 5 coal</i>		
Black shale .....	15	702
Blue shale .....	20	722
White shale .....	48	770
Brown shale .....	80	850
Blue shale .....	80	930
Limestone .....	3	933
Blue shale .....	6	939
Black shale .....	61	1000



No. 20—*Concluded*

Limestone .....	4	1004	Brown shale .....	13	1175
Black shale .....	56	1060	Blue shale .....	6	1181
Gray sandstone and salt			Red shale .....	12	1193
water .....	45	1105	Limestone .....	2	1195
Blue shale .....	10	1115	Red shale .....	5	1200
<i>Mississippian system</i>			Blue shale .....	18	1218
<i>Chester series</i>			Limestone .....	15	1233
Limestone .....	8	1123	Blue shale .....	5	1238
Blue shale .....	10	1133	Red shale .....	10	1248
Brown shale .....	27	1160	Blue shale .....	5	1253
Limestone .....	2	1162	Sandstone .....	12	1265
			Red shale .....	5	1270
			Blue shale .....	6	1276

MOULTRIE COUNTY

No. 16

<i>Moultrie County Coal Company</i>			Coal .....	3	351 ..
<i>Lovington well</i>			Fire clay .....	2 ...	353 ..
<i>SE. cor., SW. ¼, NE. ¼, sec. 27, T.</i>			Clay shale .....	5 ...	358 ..
<i>15 N., R. 5 E.</i>			Limestone .....	5 ...	363 ..
Elevation, top of shaft—669.65 feet			Clay shale .....	6 ...	369 ..
	Thickness	Depth	Conglomerate .....	3 ...	372 ..
	<i>Ft. in.</i>	<i>Ft. in.</i>	Limestone .....	25 8	397 8
<i>Pleistocene system</i>			Sand shale, dark....	2 4	400 ..
Soil, black .....	2 ...	2 ..	Sand shale .....	11 10	411 10
Clay, yellow .....	12 ...	14 ..	Coal .....	3	412 2
Clay, blue .....	58 ...	72 ..	Sand shale .....	3 11	416 1
Gravel .....	3 ...	75 ..	Shale, blue .....	9 ...	425 1
Hard clay and gravel	8 ...	83 ..	Shale, dark blue....	8 3	435 4
Gravel .....	7 ...	90 ..	Coal .....	1	435 5
Hard clay and gravel	26 ...	116 ..	Shale, dark blue....	6 5	439 10
Sand .....	11 ...	127 ..	Coal .....	5	440 3
Clay, red .....	5 ...	132 ..	Sand shale, blue....	2 10	443 1
Red clay and gravel	13 ...	145 ..	Sand shale .....	5 ...	448 1
<i>Pennsylvanian system</i>			Sandstone .....	5 ...	453 1
Sand rock .....	4 ...	149 ..	Shale, dark blue....	23 10	476 11
Sand shale .....	4 ...	153 ..	Coal .....	8	477 5
Sand shale, blue....	29 ...	182 ..	Clay shale .....	4 6	481 11
Sand shale .....	2 ...	184 ..	Limestone .....	1 ...	482 11
Sandstone .....	18 7	202 7	Shale, blue .....	2 ...	484 11
Coal .....	10	203 5	Red shale .....	5 ...	489 11
Sandstone .....	7	204 ..	Shale, blue .....	11 6	501 5
Clay shale .....	7 ...	211 ..	Shale, black .....	6	501 11
Sandstone .....	4 ...	215 ..	Shale, fossiliferous..	1 11	503 10
Sand shale, blue....	14 6	229 6	Coal .....	1 3	505 1
Shale, dark with sand-			Clay shale .....	3 10	508 11
stone bands .....	13 6	243 ..	Sandstone, shaly....	10 ...	518 11
Shale, blue .....	12 5	255 5	Sandstone, dark....	22 ...	540 11
Coal .....	2 ...	257 5	Sandstone, white....	18 ...	558 11
Sand shale .....	15 7	273 ..	Sandstone .....	23 ...	581 11
Shale, dark blue....	24 8	297 8	Shale, blue .....	2 6	584 5
Slate, fossiliferous..	1 4	299 ..	Limestone, nodular..	3 6	587 11
Slate, black.....	3 6	302 6	Limestone .....	5 7	593 6
Coal .....	1 ...	303 6	Shale, black .....	1 ...	594 6
Clay shale .....	4 6	308 ..	Shale, dark blue....	10 5	604 11
Sandstone, dark....	23 ...	331 ..	Clay shale .....	3 ...	607 11
Shale, fossiliferous..	1 ...	332 ..	Shale, blue .....	3 ...	611 ..
Shale, dark blue....	18 9	350 9	Sandstone .....	16 ...	627 ..
			Shale, blue .....	1 ...	628 ..
			Shale, dark blue....	14 6	642 6
			Shale, black .....	3 2	645 ..
			Coal .....	6	646 6

No. 16—*Concluded*

Clay shale .....	5	10	652	..
Sandstone .....	4	...	656	..
Shale, blue .....	1	...	657	..
Sandstone .....	7	...	664	..
Shale, blue .....	1	...	657	..
Sandstone .....	7	...	664	..
Sandstone, shale part- ings .....	11	...	675	..
Sand shale, dark....	9	...	684	..
Shale, dark blue....	30	6	714	6
Shale, black .....	..	6	715	..
Coal .....	1	...	716	..
Clay shale .....	2	6	718	6
Sand shale, blue....	4	6	723	..
Sand shale .....	9	...	732	..
Limestone .....	8	...	740	..
Shale, blue .....	1	6	741	6
Limestone .....	12	10	754	4
Shale, dark blue....	1	8	756	..
Shale, gray .....	7	...	763	..
Sandstone .....	19	...	782	..
Sandstone, dark ....	19	...	801	..
Shale, dark blue....	24	...	825	..
Shale, black .....	5	...	830	..
Shale, blue .....	10	...	840	..
Shale, dark blue....	10	...	850	..
Shale, dark blue....	16	...	866	..
Shale, blue .....	7	6	873	6
Coal .....	3	2	876	8
Shale partings....	1	11	878	7
Coal .....	1	4	879	11
Limestone, blue ....	3	1	883	..
Clay shale .....	5	...	888	..
Slate, black .....	3	...	894	..
Limestone, blue....	9	6	900	6
Slate, black .....	2	4	902	..
Coal (No. 6).....	8	10	911	8
Sandstone .....	8	4	920	..

No. 26

*Well near Bethany*

NE. cor., NE. 1/4, NW. 1/4, sec. 2, T.  
13 N., R. 4 E.

Curb elevation—585+ feet

	Thickness Feet	Depth Feet
<i>Pleistocene system</i>		
Soil .....	3	3
Clay .....	32	35
Sand .....	30	65
<i>Pennsylvanian system</i>		
Slate .....	35	100
Coal .....	2	102
Slate .....	48	150
Lime .....	15	165
Slate .....	5	170

Lime .....	10	180
Coal .....	6	186
Water sand, hole full of water .....	14	200
Blue mud .....	25	225
Blue mud .....	5	230
Lime .....	5	235
Blue mud .....	5	240
Lime .....	40	280
Blue mud .....	70	350
Red rock .....	20	370
Slate, blue .....	15	385
Slate, white .....	35	420
Lime .....	5	425
Salt sand, hole full of water .....	35	460
Shale, gray .....	5	465
Lime, white .....	5	470
Shale, blue .....	15	485
Lime .....	5	490
Slate, white .....	40	530
Lime, white, sandy....	5	535
Shale, blue .....	15	550
Slate, white .....	25	575
Slate, blue .....	15	590
Slate, white .....	25	615
Lime, white .....	10	625
Shale, white .....	75	700
Slate, black .....	30	730
Lime, blue .....	10	740
Slate, blue .....	60	800
Lime, white, with thin coal seams .....	75	875
Slate, white .....	25	900
Slate, black .....	25	925
Slate, white .....	45	970
Slate, dark .....	30	1000
Slate, white .....	20	1020
Shale, brown .....	6	1026
Slate, black, horizon of No. 5 coal.....	24	1050
Slate, white .....	25	1075
Slate, dark .....	40	1120
Shale, white .....	20	1140
Lime, broken .....	10	1150
Slate, white .....	50	1200
Lime, white. Set 8-inch casing, underreamed to 1500; 5 bailers water..	10	1210
Sand, white .....	20	1230
Lime, coarse, gray....	10	1240
Slate, sandy, gray....	35	1275
Slate, white .....	25	1300
Shale, dark, sandy....	25	1325
Lime shale .....	5	1330
Slate, dark .....	10	1340
Sandy lime .....	10	1350
Slate .....	25	1375
Shale, white, bad dry cave	25	1400
Slate, sandy; set 6 5/8-inch casing at 1410; under- reamed to 1650.....	20	1420



No. 26— <i>Concluded</i>			Lime, gray, with slate seams . . . . .		30	1775
			<i>Lower Mississippian system</i>			
Slate, blue, cavy . . . . .	30	1450	Lime, blue . . . . .	25	1800	
Shale, blue sandy . . . . .	55	1505	Lime . . . . .	40	1840	
<i>Mississippian system</i>			Lime, white, fine . . . . .	15	1855	
<i>Upper Mississippian sub-system</i>			Lime, coarse, gray . . . . .	5	1860	
<i>Chester series</i>			Lime, gray . . . . .	15	1875	
Lime, white; 8½-inch casing at 1490; (Well dry") . . . . .	5	1510	Lime, brown . . . . .	25	1900	
Slate, blue . . . . .	10	1520	Lime, brown and black . . .	50	1950	
Red rock . . . . .	30	1550	Lime, brown . . . . .	25	1975	
Lime, brown . . . . .	40	1590	Lime, white, coarse . . . . .	15	1990	
Slate, sandy . . . . .	40	1630	Lime, brown, coarse . . . . .	10	2000	
Red cave . . . . .	15	1645	Lime, gray, fine . . . . .	40	2040	
Sand, white . . . . .	5	1650	Lime, brown, fine . . . . .	10	2050	
Red rock, casing under-reamed to 1650 . . . . .	5	1655	Lime, brown, 15 bailers of water . . . . .	25	2075	
Sand, white . . . . .	10	1665	Lime, brown, 500 feet of water . . . . .	15	2090	
Slate, red . . . . .	10	1675	Lime, brown . . . . .	15	2105	
Slate, brown . . . . .	25	1700	Lime, brown, hole full of water . . . . .	20	2125	
Lime, gray . . . . .	25	1725	Lime, gray . . . . .	?	....	
Slate, blue . . . . .	10	1735	Lime, gray, sandy . . . . .	23 ?	2150	
Sand, white . . . . .	5	1740				
Shale, red . . . . .	5	1745				

PIATT COUNTY

No. 2			Shale, gritty . . . . .	30	410
			Shale, black . . . . .	50	460
<i>J. L. Apple Oil Prospecting Co.</i>			Shale, gritty . . . . .	40	500
			Shale, black . . . . .	30	530
<i>N. G. Pattengill farm—No. 1</i>			Shale, white . . . . .	20	550
			Shale, black . . . . .	10	560
<i>SW. ¼, SE. ¼, sec. 3, T. 17 N., R.</i>			Limestone, brown . . . . .	10	570
<i>¼ E.</i>			Shale, white . . . . .	50	620
Curb elevation—641 feet			Shale, black . . . . .	15	635
			Coal (No. 5) . . . . .	2	637
			Shale, white . . . . .	63	690
			Shale, brown . . . . .	50	740
			Shale, black . . . . .	50	790
<i>Pleistocene system</i>			Shale, brown . . . . .	40	830
Clay and gravel . . . . .	25	25	Shale, black . . . . .	30	860
Sand . . . . .	15	40	Shale, white . . . . .	20	880
Cement gravel . . . . .	20	60	Shale, black . . . . .	20	900
Quicksand . . . . .	10	70	Limestone, brown . . . . .	40	940
Cement gravel . . . . .	20	90	Shale, brown . . . . .	30	970
Quicksand . . . . .	15	105	Shale, gritty . . . . .	55	1025
Cement gravel . . . . .	25	130	Shale, black . . . . .	25	1050
Quicksand . . . . .	7	137	Slate, black . . . . .	20	1070
Clay, gravel . . . . .	8	145	Shale, brown . . . . .	30	1100
Quicksand . . . . .	10	155	<i>Mississippian system</i>		
Water gravel . . . . .	5	160	<i>Upper Mississippian sub-system</i>		
<i>Pennsylvanian system</i>			Limestone, brown . . . . .	40	1140
White lime (?) . . . . .	17	177	Shale, red . . . . .	70	1210
White mud . . . . .	23	200	Slate, gritty . . . . .	20	1230
Black shale . . . . .	10	210	Red rock . . . . .	35	1265
Coal . . . . .	1	211	Slate, gritty . . . . .	5	1270
Shale, brown . . . . .	24	235	Limestone, white . . . . .	10	1280
Shale, black . . . . .	25	260	Sand and salt water . . . . .	55	1335
Shale, white . . . . .	40	300	<i>Lower Mississippian sub-system</i>		
Shale, black . . . . .	20	320	Limestone, white . . . . .	15	1350
Shale, gritty . . . . .	40	360	Limestone, brown . . . . .	50	1400
Shale, white . . . . .	20	380			

OIL IN THE DECATUR AREA

SANGAMON COUNTY

No. 15

*Mechanicsburg Coal Company*

*NE. cor., NW. ¼, NE. ¼, sec. 26, T. 16 N., R. 3 W.*

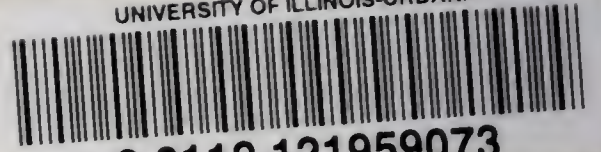
Curb elevation—585 feet

	Depth <i>Feet</i>
Base of No. 6 coal.....	277
Base of No. 5 coal.....	305





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